-22-3, Shibuya 2-chome, Shibuya-ku, Tokyo, 150 Japan Tel: 03-3400-1121 Fax: 03-3400-8679 Telex: J22908, J22152
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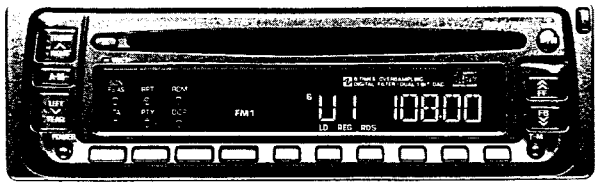
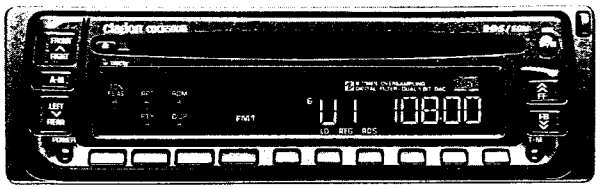
clarion Service Manual

Published by Service Information Section





RDS-EON FM/MW/LW CD PLAYER WITH CD CHANGER CONTROL

Model CDC7500R
(PE-2068A)

Model CDC6500R
(PE-2069A)

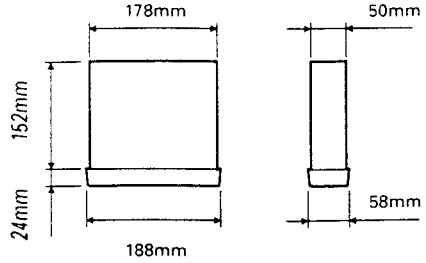
■SPECIFICATIONS:

RADIO SECTION
Tuning System: PLL synthesizer tuner
Receiving Frequencies:
FM: 87.5 to 108 MHz (50 kHz steps)
MW: 531 to 1,602 kHz (9 kHz steps)
LW: 153 to 279 kHz (1 kHz steps)

CD PLAYER SECTION
System: Compact Disc Audio
Signal Format:
Sampling frequency 44.1 kHz, 8 times oversampling, Dual 1-bit D/A Converters
Frequency Response:
5 Hz to 20,000 Hz (±2 dB)
Dynamic Range: 95 dB (1 kHz)
S/N Ratio: 110 dB (1 kHz) IHF-A
Wow & Flutter:
Below measurement range
Distortion: 0.018%

GENERAL
Power Supply Voltage:
DC 14 V (10.8 to 15.6 V allowable), negative ground
Power Consumption: Less than 10 A
Speaker Impedance:
4 Ω (4 to 8 Ω allowable)
Auto Antenna Rated Current: 0.5 A or less
Weight: 1.3 kg

Dimensions:

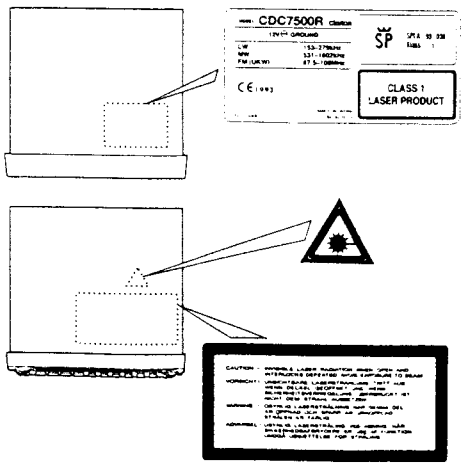


■COMPONENTS:

- **CDC7500R (PE-2068A-A)**
- **CDC6500R (PE-2069A-A)**

Main unit		1
Mounting bracket	300-6954-00	1
Mounting bracket	300-9035-01	1
Extension lead	854-3283-00	1
Parts bag	921-9122-00	1
{ Spacer	345-3653-01	1
{ Lead holder	335-0833-01	2
{ Screw	716-0726-01	1
{ Hook plate (R)	331-0118-00	1
{ Hook plate (L)	331-0119-00	1
Parts bag	921-9112-00	1
{ DCP case	335-4467-00	1

■PRECAUTIONS:



CAUTIONS:

This appliance contains a laser system and is classified as a "CLASS 1 LASER PRODUCT". To use this model properly, read this Owner's Manual carefully and keep this manual for your future reference. In case of any trouble with this player, please contact your nearest "AUTHORIZED service station". To prevent direct exposure to the laser beam, do not try to open the enclosure.

WARNING: Static discharges can destroy expensive components Discharge any static electricity your body may have accumulated by grounding yourself to the ground buss in the unit (heavy gauge black wires connect to this buss)

IMPORTANT: Turn the unit OFF during disassembly and parts replacement Recheck all work before you apply power to the unit

CAUTION: USE OF CONTROLS OR ADJUSTMENTS OR PERFORMANCE OF PROCEDURES OTHER THAN THOSE SPECIFIED HEREIN MAY RESULT IN HAZARDOUS RADIATION EXPOSURE DO NOT LOOK INTO THE OPTICAL LENS AT ANYTIME

- When disassembling, be sure to turn off the power Disconnecting a connector during power-on may destroy the internal IC.
- To protect the semiconductor laser from damage, the CD player will automatically terminate disc play when its internal temperature rises past a standard level. When this occurs, HH HHHH PAUSE will appear on the display to indicate that the standard level has been exceeded. Eject the disc from the unit using the eject button and wait untill the teperature returns to normal. (Note that the disc should be removed from the player for protection.)

■FEATURES:

TUNER
- **RDS Receiver with EON**
- **PLL Synthesizer Tuner**
- **Seek/Preset/Manual Tuning**
- **24 Presets (18 FM, 6 MW/LW)**
- **Preset Station Scan (PS)**
- **Auto Store (AS)**
- **DX/LO Switch**
- **Noise Suppression Circuits: Super SASC II and CZ1**

CD
- **Full Logic CD Controls**
- **8-Times Oversampling Digital Filter**
- **Dual 1-Bit «Bit-Stream» D/A Converters**
- **3-Beam Laser Tracking System**
- **Reduced-Vibration Suspension System**
- **Random Play**
- **Intro Music Scan**
- **Repeat (single track/entire disc)**
- **Track Search FF/FB**
- **2-Speed Audible Search FF/FB**
- **Disc Initializer (Top)**
- **Disc Rescue**
- **Plays 8 cm Discs**
- **«Disc-In» Indicator**

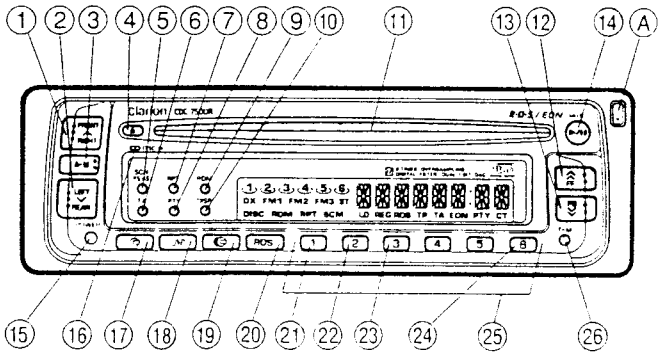
AUDIO
- **High Power 4 × 30 W max. 5-Channel Gold-plated RCA Line Level Output (CDC7500R only)**
- **4-Channel Gold-plated RCA Line Level Output (CDC6500R)**
- **Electronic Controls (Volume/Bass/Treble/Balance/Fader)**
- **Audio Muting**
- **Loudness**

GENERAL
- **X-pander for connection of optional audio components**
- **CD Changer Control (CDC7500R only)**
- **Subwoofer Output (CDC7500R only)**
- **Switchable Illumination Colour: Amber/Green**
- **Triggered Audio Mute for Cellular Telephone**
- **D/A Line (CDC7500R only)**
- **Full Information LCD Display**
- **RDS Data Clock**
- **Night Illumination**
- **Power Antenna Activator**

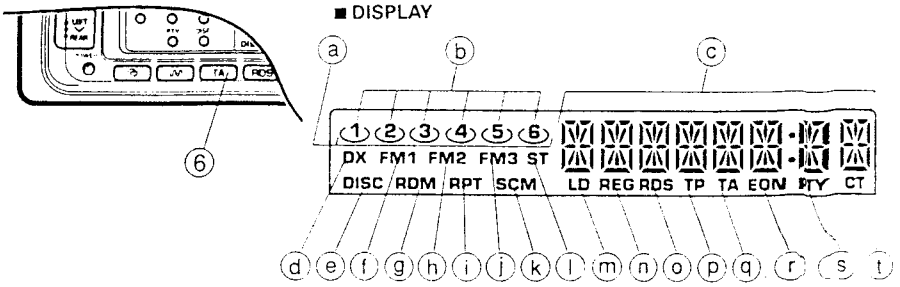
SECURITY
- **Fully Detachable Control Panel**
- **Blinking Theft-Preventing Indicator**

■OPERATION:

■ OPERATING CONTROLS



① Up Button (∧)
② Down Button (∨)
③ Audio Mode Button (A-M)/Loudness Button
④ Eject Button (⏏)
⑤ Preset Scan and Auto Store Button (PS/AS)
⑥ Traffic Announcement Button (TA)
⑦ Repeat Play Button (RPT)
⑧ Programme Type Button (PTY)
⑨ Random Play Button (RDM)
⑩ Display Mode Selector Button (DISP)/Illumination Selector Button
⑪ Disc Insertion Slot
⑫ Up Tuning Button/Programme Type Select Button/Search Control Up Button (⩓)
⑬ Down Tuning Button/Programme Type Select Button/Search Control Down Button (⩔)
⑭ Audio Muting Button (MUTE)/Play and Pause Button (►/II)
⑮ POWER Button
⑯ DISC IN Indicator
⑰ CD Mode Selector Button (⊜)/Top Play Button
⑱ Tuner Mode Selector Button (⋀)
⑲ CD Changer Mode Selector Button (⊜)
⑳ RDS Button/Regional Select Button
㉑ Function Button 1
㉒ Function Button 2
㉓ Function Button 3
㉔ Function Button 4
㉕ Preset Buttons/Direct Disc Selector Buttons
㉖ Tuning Mode Selector Button (T-M)/ DX/Local Button
Ⓐ DCP Release Button



■ DISPLAY

ⓐ Magazine Disc Indicator
ⓑ Preset Channel Indicators
ⓒ Display Area
ⓓ DX Indicator
ⓔ DISC Indicator
ⓕ FM1 Band Indicator
ⓖ Random Play Indicator (RDM)
ⓗ FM2 Band Indicator
ⓘ Repeat Play Indicator (RPT)
ⓙ FM3 Band Indicator
ⓚ Scan Indicator (SCN)
ⓛ Stereo Reception Indicator (ST)
ⓜ Loudness Indicator (LD)
ⓝ Regional Indicator (REG)
ⓞ RDS Indicator
ⓟ Traffic Programme Indicator (TP)
ⓠ Traffic Announcement Indicator (TA)
ⓡ EON Indicator
ⓢ Programme Type Indicator (PTY)
ⓣ Clock Time Indicator (CT)

General Operation

* **POWER Button** ☛ ⑮
* **Audio Mode Selector (A-M)/Loudness Button** ☛ ③
  When button ③ is pressed, the audio adjustment mode switches in the following order:
  Volume → Bass → Treble → Balance → Fader → Volume
  - **Loudness on/off**
    When you press the A-M button ③ for more than 2 seconds, loudness is turned on, and the "**LD**" indicator ⑪ lights up. To turn loudness off, press the button again for more than 2 seconds.
* **Audio Control Up Button** ☛ ①
  Audio Control Down Button ☛ ②
  For details, see below.

☆ **Changing the Illumination Colour**
Holding down button ⑩, press button ㉑. Choose amber or green, as you prefer.

☆ **Setting the DSP mode**
If you have a Digital Sound Processor (DSP) connected to your unit, you must carry out this setting without fail. Turn the volume to the maximum (Vo33). Holding down button ⑩, press button ㉒. The adjustments of the volume and tone are carried out on the Digital Sound Processor.
NOTE: NEVER connect the digital control lead if you are not making digital connections.

☆ **Setting the Equalizer Mode**
If you have an Equalizer or a Digital Sound Processor with a built-in equalizer connected to your unit, you must carry out this setting without fail. Holding down button ⑩, press button ㉓. The bass/treble adjustment is carried out on the equalizer.

☆ **Triggered Audio Mute for Cellular Telephones**
When a telephone call is received, "**TEL**" appears on the display, and muting is applied. When you hang up the phone, the previous mode becomes operative again.

■ Audio Mode Indications and Description of Operation

Audio Control Up/Down Buttons / Audio Mode	LEFT / REAR	Center Position	FRONT / RIGHT	Description of Operation
VOL (volume adjustment)	VOL 00	VOL 09 **Note 3** (initial setting)	VOL 33	The volume decreases as the numbers decrease, and increases as the numbers increase.
BASS (bass adjustment)	BASS -7 (negative indication)	BASS 0	BASS +7	The bass sound is attenuated as the numbers decrease from the center position, and emphasized as the numbers increase. (The range is from −7 to +7.)
TREB (treble adjustment)	TREB -7 (negative indication)	TREB 0	TREB +7	The treble sound is attenuated as the numbers decrease from the center position, and emphasized as the numbers increase. (The range is from −7 to +7.)
BAL (left/right balance adjustment)	BAL L 15 (Balance Left)	BAL 00	BAL R 15 (Balance Right)	The sound of the left speaker(s) is emphasized when the display switches from "**BAL 00**" (Balance) to "**BAL L**" (Balance Left), and the sound of the right speaker(s) is emphasized when the display switches from "**BAL 00**" (Balance) to "**BAL R**" (Balance Right).
FAD (front/rear balance adjustment)	FAD R 15 (Fader Rear)	FAD 00	FAD F 15 (Fader Front)	The sound of the rear speaker(s) is emphasized when the display switches from "**FAD 00**" (Fader) to "**FAD R**" (Fader Rear), and the sound of the front speaker(s) is emphasized when the display switches from "**FAD 00**" (Fader) to "**FAD F**" (Fader Front).

Note 1: In the balance and fader adjustment modes, the actual steps and the steps indicated on the display do not match due to the large number of steps.
Note 2: The original display reappears approximately 5 seconds after the adjustments in the various audio modes.
Note 3: The various modes are set to the following values when the power is first turned on after the set is installed in the car: VOL 09, BASS 0, TREB 0, BAL 00 and FAD 00.

Listening to the Radio

* **Tuner Mode Selection/Band Selection Button** ☛ ⑱
  - **Selecting the tuner mode**
    Press button ⑱ to set the tuner mode.
  - **Selecting the Band**
    Each time you press button ⑱, the reception band changes in the following order.
    FM1 → FM2 → FM3 → L/M → FM1
    (FM1, FM2 and FM3 are on the same reception frequency band.)
  - **Seek Tuning (Local/DX)**
    There are two sensitivity levels for seek tuning: DX seek, which will tune in any broadcasting station which can be received, and Local seek, where only those stations with a sufficiently strong signal, i.e. local stations, can be tuned in.

<DX Seek>
1. Check that the "**DX**" indicator ⓓ is lit. If not, press the T-M button ㉘ for more than 2 seconds.
2. Press button ⑫ or button ⑬ briefly to change the frequency. Tuning stops at the next station with good reception.

<Local Seek>
1. Press the T-M button ㉖ for more than 2 seconds. The "**DX**" indicator ⓓ turns off, and a moment later "**LO**" will appear for several seconds, and then disappear.
2. Press button ⑫ or button ⑬ to tune in a station. Release the button when you reach the desired station.

RDS (Radio Data System) Operation

* **RDS Button** ☛ ⑳
  Set the RDS mode by pressing the RDS button ⑳, so the "**RDS**" indicator ⓞ lights up. When you press the button again, this mode is released.
  1. When an RDS station is received, the station name is displayed. (PS: Programme Service name)
  2. If an emergency broadcast is received while an RDS station is being received, "**ALARM**" is displayed. The volume of the emergency broadcast is automatically set at the pre-set value.
  3. If good reception of the RDS broadcast becomes impossible in your present location, the "**RDS**" indicator ⓞ starts blinking.
  4. When seek tuning is carried out in the RDS mode, only stations broadcasting an RDS signal will be received.
  5. ● Preset Scan in RDS Mode
     When you press the PS button ⑤, Preset Scan will be carried out only on the RDS stations among the preset stations.
     ● Auto Store in RDS Mode
     When you press the AS button ⑤ for more than 2 seconds, only RDS stations will be stored on the Preset buttons.

☆ **Same-Programme Search (PI: Programme Identification)**
Press the Preset button ㉕ on which an RDS station has been stored, and if this station cannot be received (the "**RDS**" indicator (ⓞ) is blinking), press the same Preset button again. "**SEARCH**" will be displayed and a station broadcasting the same programme will be received.
The PI code will be displayed for about 5 seconds if you hold down the RDS button ⑳ and press Preset button 1 ㉑ at the same time.

☆ **Regional Programme Function (REG)**
REG ON ("REG" lit):
Only local (regional) radio broadcasts in the local area will be sought.
REG OFF ("REG" off):
If you are receiving a regional station in a certain area and you enter a different area, the regional station for that area will be received.
In the RDS mode, the REG function will turn on/off each time you press the RDS button ⑳ for more than 2 seconds.

☆ **RDS EON (Enhanced Other Networks Information)**
When EON data is received for an RDS broadcast, the "**EON**" indicator ⓒ will light up.
1. If you are waiting to receive traffic information, and the "**EON**" indicator lights up, traffic information will be broadcast when the traffic information begins, even if it is on a different station to the one you are currently receiving.
2. When the "**EON**" indicator is lit, if you press a Preset button ㉕, the station with the best signal in that area will be received instantly.

★ Certain countries and certain stations do not transmit EON data.

☆ **Music/Speech Function (MS)**
This function automatically turns loudness off to make it easier to hear speech broadcasts.
If you hold down the RDS button ⑳ and press the Preset button 6 for less than 2 seconds, this function will be set and "**MS ON**" will be displayed. Loudness will be switched on/off according to the received data from the broadcasting station. When you repeat the operation, this function will go OFF and "**MS OFF**" will be displayed.

★ Some broadcasting stations do not transmit Music/Speech data.

* **PTY (Programme Type) button ☛ ⑧**
The PTY function enables you to give a selected programme type listening priority when it begins. When you press button ⑧ after selecting the desired programme type (PTY), the "**PTY**" indicator ⑤ lights up and the PTY broadcast wait state becomes operative.
When you press button ⑧ again, the PTY wait state is released. However, if you press this button during a PTY broadcast, the PTY broadcast is cancelled and the PTY broadcast wait state becomes operative again.
When the selected PTY broadcast is received, it is reproduced on your unit.
★ In the traffic information wait state, traffic information broadcasts have priority over PTY broadcasts.
★ During a PTY broadcast, the display will change in the following order each time your press the DISP button ⑩.
PTY name → PS name → Clock display (CT) → PTY name

☆ **PTY Selection Method**
1. Press the PTY button ⑧ for more than 2 seconds.
2. Select the desired programme type (PTY) using the tuning up/down buttons ⑫ and ⑬.
3. After PTY selection, press the PTY button ⑧. The PTY broadcast wait state will then become operative.

* **PTY Storage, Calling and Checking Method**
1. After carrying out PTY selection, press a Preset button ㉕ for more than 2 seconds. (6 settings can be stored.)
2. When the PTY display blinks, the storage process is complete.
3. To call up a stored setting, press the PTY button for less than 2 seconds, then press the desired Preset button ㉕.

★ If you press the PTY button for more than 2 seconds, the PTY select mode will be set, so be careful.

* **TA (Traffic Announcement) Button ☛ ⑥**
When traffic information begins, this is given top listening priority.
When you press the TA button ⑥, the "**TA**" indicator (⑨) lights up, and a traffic information station is sought. If such a station is found, the "**TP**" indicator (Ⓟ) lights up, and the traffic information wait state becomes operative. When you press the TA button again, this state is released.
If you press the TA button while listening to traffic information, the traffic information broadcast is cancelled and the traffic information wait state becomes operative again.
If no traffic information station is found, "**NO TRA**" is displayed, so you then press the TA button to release the state. Traffic information is automatically reproduced at the preset volumelevel.
1. When the traffic information begins, "**TRA INFO**" is displayed for about 5 seconds, after which the PS (Programme Service Name) or frequency is displayed. Also, if the traffic information begins while the clock (CT: Clock Time and Date) is being displayed, the clock display reappears after the "**TRA INFO**" display.
2. The loudness function is turned off during traffic announcements.
3. The table below shows what happens when the DISP button ⑩ is pressed in certain display states.

Display before button is pressed	Display after button is pressed
TRA INFO	PS or CT
PS	TRA INFO
CT	PS

4. Even if the "**TA**" indicator ⑨ is lit, when a station not broadcasting traffic information is being received, a traffic information station will be sought when you press the TA button.
5. ● Preset Scan when "**TA**" Indicator ⑨ is Lit:
When you press the PS button ⑤, only stations broadcasting traffic information will be covered by the Preset Scan.
● Auto Store when "**TA**" indicator ⑨ is Lit:
When you press the PS button ⑤ for more than 2 seconds, only stations broadcasting traffic information will be stored automatically.

☆ **Traffic Information and Emergency Broadcast Volume Setting Method**
1. Press the TA button for more than 2 seconds.
2. Adjust the volume using the buttons ① and ②.
3. If you press any button other than ① or ②, and take no other action for 5 seconds, the previous state will become operative again.

☆ **Time Display Function (CT: Clock Time and Date)**
In areas where CT data is broadcast, the time can be displayed.
When CT data is received, the "CT" indicator ① lights up.
When you press the DISP button ⑩, the time is displayed. If you press this button again or else press the mode selector button, the original display will reappear.
★ Certain countries and certain broadcasting stations do not broadcast CT data. Also, depending on the area, the time may be incorrectly displayed, so be careful.

Operating the CD Deck Controls

☆ **Playing CDs**
Insert the disc with the labelled side facing upward. The disc is then automatically loaded and playback begins. For details on the display, see below.

8 cm CD singles can be played without the need for an adaptor.

★ Only compact discs with the mark can be played in this unit.

☆ **Last position memory**
The track which was last playing when the power was turned off or before the mode was switched is stored in the memory. When the CD mode is next set, playback begins from the track which was previously playing.

* **CD Mode Selector Button/Top Play Button ☛ ⑰**
● **Selecting the CD Mode**
Press button ⑰ to start playback.
● **Top Play Function**
Playback starts over from track 1 when you press button ⑰ during playback.

* **Play/Pause button ☛ ⑭**
Press button ⑭ to switch between the play and pause modes.

* **Eject Button ☛ ④**
When you press button ④ the CD is ejected.

* **Search Control Up Button ☛ ⑫**
Search Control Down Button ☛ ⑬
Use these to search for track numbers or to forward and reverse the disc.
● **Track Number Search**
When you press button ⑫, the track number goes up, and when you press button ⑬, the track number goes down.
● **Cueing/Reviewing (high-speed playback)**
Press and hold button ⑫ for cueing and button ⑬ for reviewing. The pick-up moves at 15 times the normal playback speed after the button has been held in for 5 seconds.

* **Repeat Play Button ☛ ⑦**
Press button ⑦ to play the current track repeatedly. Press the button again to cancel the repeat play mode.

* **Scan Button ☛ ⑤**
Press button ⑤ to play the first 10 seconds of each track. Press the button again to cancel the scan mode.

* **Random Play Button ☛ ⑨**
Use this function to play the tracks on the disc in random order. Press button ⑨ to begin random play, and press it again to cancel the random play mode.

■ Display in the CD Mode

Button No. and Operation Mode	Display	Explanation of the Display
CD is being loaded	LOAD	"LOAD" is displayed.
CD is being ejected	EJECT	"EJECT" is displayed.
Pause mode	PAUSE	"PAUSE" is displayed.
Switching to CD mode	NO DISC	"NO DISC" is displayed if no disc is loaded.
Repeat play	RPT 1 02:53	"RPT" lights and the track number and playing time are displayed.
Random play	RDM RANDOM	"RDM" lights and "RANDOM" is displayed.

Operating a CD changer (CDC7500R only)

* **CD Changer Mode Selector Button** ☛ ⑲
Press button ⑲ to begin playback.
★ For details on the display, refer to Page 16.

☆ **Last Position Memory**
Before the power is switched off, and before changing to another mode, this unit stores the setting for the track which was being played last. When playback is resumed, it starts with this track.
★ When the magazine is replaced, the stored setting for the track previously played is erased.

* **Play/Pause Button** ☛ ⑭
Each time you press button ⑭, playback begins or pauses.

* **Disc Up Search Button** ☛ ⑲
When you press button ⑲, the next disc starts playing. Each time you press this button, the unit moves on to the next disc, in order.

* **Direct Disc Selector Buttons** ☛ ㉕
When you press a button ㉕ (1 to 6), the disc corresponding to the button which was pressed is played. If you press the button for the disc number currently playing, the unit will return to the first track on the disc.

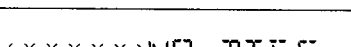
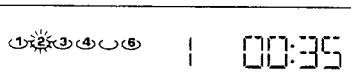
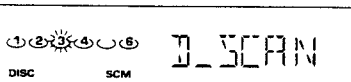
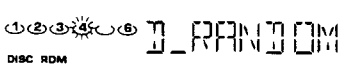
* **Search Control Up** ☛ ⑫
Search Control Down ☛ ⑬
- **Track Number Search**
When you press button ⑫, the track number goes up, and when you press button ⑬, the track number goes down.
- **Cueing/Reviewing (high-speed playback)**
Press button ⑫ for cueing and button ⑬ for reviewing.

* **Repeat Play Button** ☛ ⑦
- **Track Repeat**
Press button ⑦ to play the track currently playing over and over again. When you press the button again, this mode is released.
- **Disc Repeat**
Press button ⑦ for more than 2 seconds to play the disc currently playing over and over again. When you press the button again, this mode is released.

* **Scan Button** ☛ ⑤
Press this button to play the first 10 seconds of each CD track.
The scan function consists of Track Scan, which plays a bit of each track on the disc, and Disc Scan, which plays a bit of the first track on the disc and then moves on to the next disc.
- **Track Scan**
Press button ⑤ to start track scan. When you press the button again, this mode is released and normal playback continues.
- **Disc Scan**
Press button ⑤ for more than 2 seconds to start Disc Scan. When you press the button again, this mode is released and normal playback continues.

* **Random Play Button** ☛ ⑨
The Random Play function consists of normal Random Play, which selects and plays tracks at random from one disc, and Disc Random Play, which selects and plays tracks at random from among all the discs in the magazine.
- **Random Play**
Press button ⑨ to start random play. When you press this button again, this mode is released. When the unit has finished playing all the tracks on the disc, it moves on to the next disc and starts random play on that disc.
- **Disc Random Play**
Press button ⑨ for more than 2 seconds to start random play of all tracks on all discs. When you press the button again, this mode is released.
Tracks are selected at random, so the same track may be played more than once.

■ Display in the CD Changer Mode

Button No. and Mode of Operation	Display	Explanation of the Display
When mode changes		Displayed when the CD changer is not connected (wrongly wired, for example)
		Displayed when the magazine is not set in the CD changer
		Displayed when no CD has been inserted in the magazine
During playback		The disc number flashes and the track number and playing time are displayed.
⑤ During Disc Scan		"D-SCAN" displayed
⑨ During Disc Random Play		"D-RANDOM" displayed

■TROUBLESHOOTING:

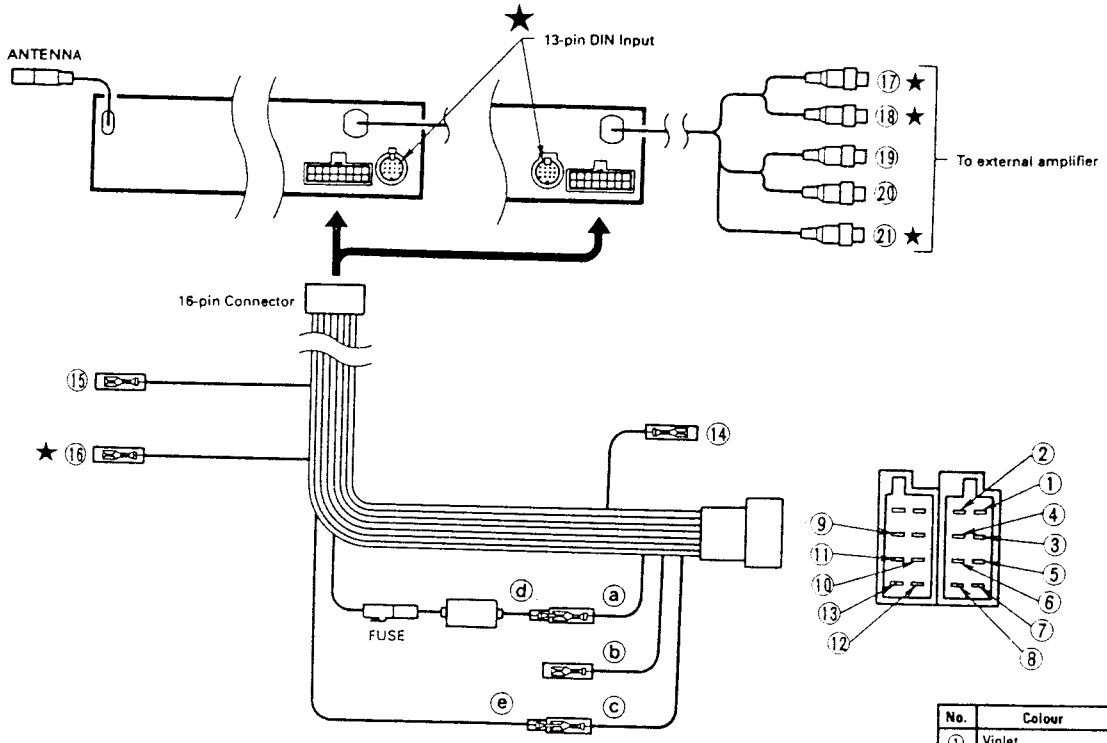
Problem	Cause	Remedy
The power will not come on (no sound produced).	The fuse has blown.	Replace the fuse with a new one which has the same capacity as the old one (in the case of this unit, 10 A). If the new fuse blows, consult your dealer.
	The wiring is incomplete.	Read the wire connection instructions again, and correct the wiring.
The sound quality is poor.	The head is dirty.	Clean the head using a cleaning tape.
	The disc is scratched or bent.	Play another disc to determine if the disc you just played is defective.
When you press a button, it does not have the desired effect, and the appropriate display does not appear.	The microcomputer is malfunctioning due to noise interference or some other cause.	Press the Reset button for about 2 seconds using the tip of a pen or a similar object.

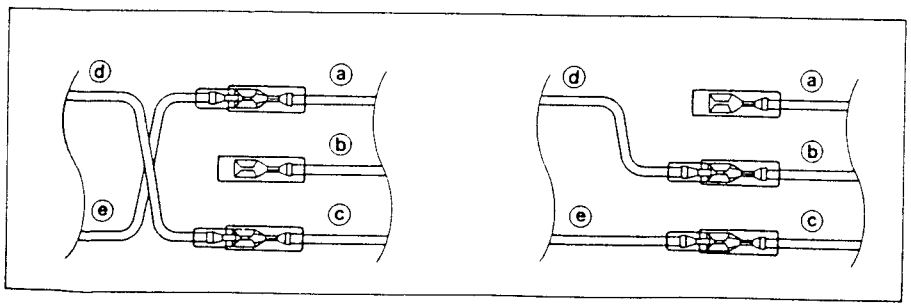
■ **To protect the system, this unit has a self-diagnostic function. If a fault occurs, the unit will inform you by displaying one of a range of error messages. Eliminate the fault by following the "What To Do" instructions.**

Error message	What To Do
HHHH	Playback automatically stops and this message is displayed when the unit is in the CD changer mode and the CD changer's internal temperature rises. →Cool the area around the CD changer and wait a while.
ERROR 1	This error message is displayed when the unit is in the CD changer mode and the built-in battery in the CD changer has run down. →Consult your dealer.
ERROR 2	This error message is displayed when the unit is in the CD changer mode and a fault has occurred in the CD changer mechanism (it cannot carry out a disc change, for example). →The fault is likely to lie in the CD changer mechanism, so consult your dealer.
ERROR 3	This error message is displayed during playback in the CD changer mode, when the pickup focus is incorrect, due to a scratched disc, for example. →Check the disc in the magazine.
ERROR 6	This error message is displayed when the disc in the magazine has been inserted upside-down. →Check the disc in the magazine.

* When the error code displayed on your unit is not one of those listed above, consult your dealer, quoting the code.

■WIRE CONNECTIONS:

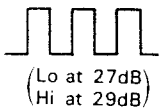




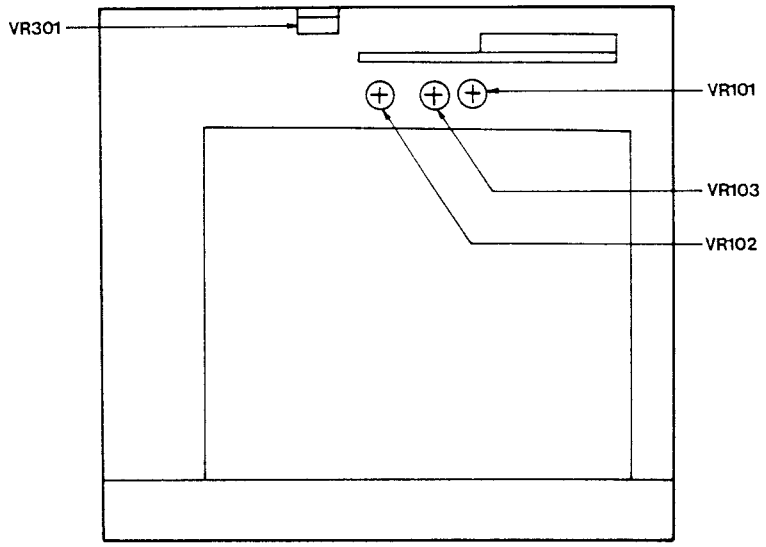
No.	Colour	Description
①	Violet	REAR RIGHT ⊕
②	Violet/Black	REAR RIGHT ⊖
③	Grey	FRONT RIGHT ⊕
④	Grey/Black	FRONT RIGHT ⊖
⑤	White	FRONT LEFT ⊕
⑥	White/Black	FRONT LEFT ⊖
⑦	Green	REAR LEFT ⊕
⑧	Green/Black	REAR LEFT ⊖
⑨	Yellow	PERMANENT
⑩	Blue/White	AUTO ANTENNA
⑪	Orange/White	ILLUMINATION
⑫	Red	ACCESSORY
⑬	Black	GROUND
⑭	Blue/White	REMOTE ON
⑮	Brown	PHONE MUTE
⑯	Pink/White	DIGITAL CONTROL
⑰	Grey (Red)	FRONT RIGHT
⑱	Grey (White)	FRONT LEFT
⑲	Black (Red)	REAR RIGHT
⑳	Black (White)	REAR LEFT
㉑	Black (Black)	SUB-WOOFER

	ⓐ	Yellow	ⓓ	Yellow
	ⓑ	Red	ⓔ	Red
	ⓒ	Red		

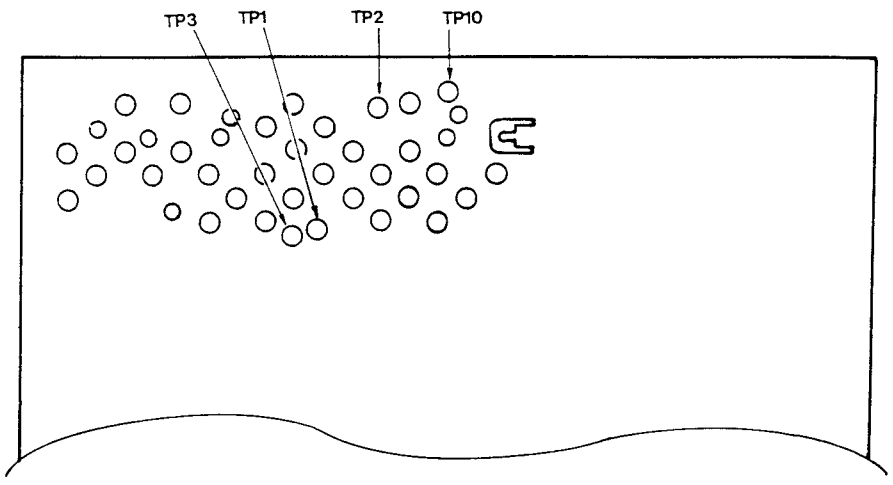
■ADJUSTMENT:

Adjustment item	Adjustment point	Procedure
SD	VR103	1. Input the 98.1MHz/28dB signal (400Hz/30% MOD). 2. Connect the TP10 to the ground and connect the oscilloscope to TP2. 3. Adjust the waveform by VR103.  (Lo at 27dB Hi at 29dB)
S-meter	VR101	1. Connect the digital volt-meter to TP1. 2. Input the 98.1MHz/30dB (400Hz/30% MOD), and adjust the level to 2.4±0.1V by VR101.
BPF	VR102	1. Input the 98.1MHz/65dB (5.3% sk MOD). 2. Connect the oscilloscope to TP3, and adjust VR102 so that the waveform of TP3 is maximum.
Sub woofer	VR301	1. Input the 98.1MHz/55dB (30Hz/30% MOD). 2. Adjust to same level for sub woofer output and Line-out output.

● ADJUSTMENT POINT



TOP VIEW



BOTTOM VIEW

■PROCEDURE FOR REPAIR AND ADJUSTMENT:

1) Cautions

- ○ This unit, as operates on single power supply, operates on the basis of various mid-point potential (such as, 2.5V and 4.7V mid points).
- ○ When observing the operating state from the reference by an oscilloscope, connect CH1 GND to the mid point for measurement. The other probe GND should not be connected anywhere.
- ○ When measuring the laser current, the misconnection of the measuring point may damage the laser (in the pick-up section).

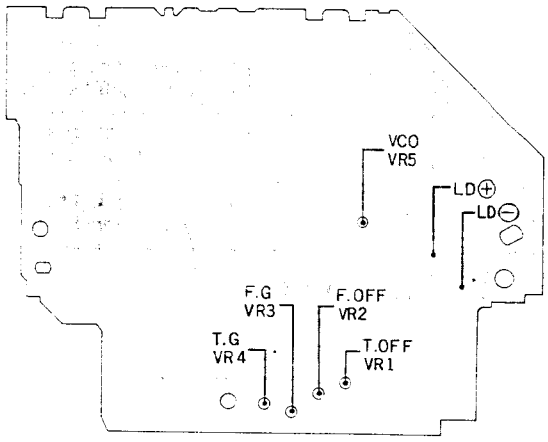
2) Test Disc

- ○ SONY TYPE4 (YEDS18) 12cm
- ○ ABEX MODEL TCD-783 8cm

3) Follow the precautions in handling the pick-up of special notes on page 2.

4) Adjusting order

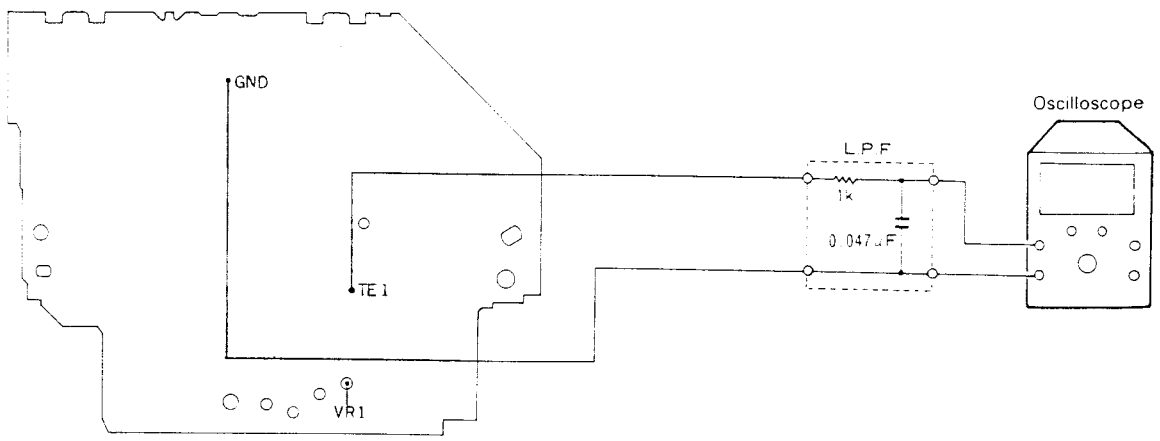
1. Tracking offset
2. Focus offset
3. Focus gain
4. Tracking gain



■Adjusting Tracking Offset

- **Purpose**
  To optimize the EF balance of the tracking servo.
- **When adjustment is incomplete**
  It takes a long time for search. The carriage runs away.
- **Measuring instrument**
  Oscilloscope
- **Measuring point**
  TP TE1
- **Test disc and setting state**
  SONY TYPE4, normal mode
- **Adjustment** : VR1

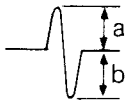
Connection diagram



Adjusting procesure

1. Make sure that the power is turned off and connect the measuring instrument as indicated in the above diagram.
2. Play back the first music of SONY TYPE4.
3. Perform the manual search and check the state of TR Jump (track jump) by an oscilloscope.

Adjust the tracking offset adjusting volume (VR1) so that the waveform may become symmetrical in both forward and reverse modes.

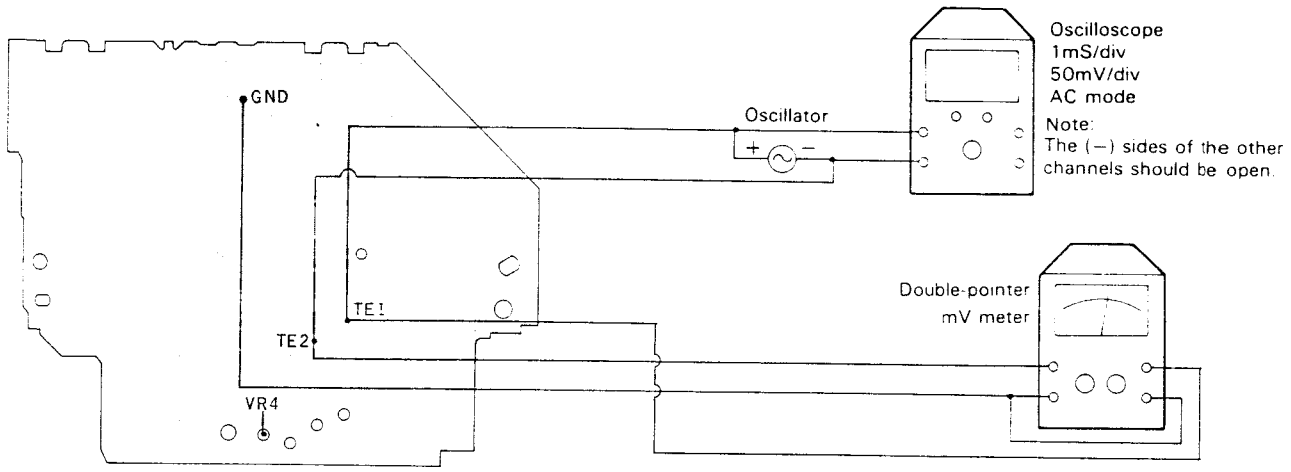


Adjust so as to be a ≒ b.

■Adjusting the Tracking Servo Loop Gain

- **Purpose**
  To adjust the tracking servo loop gain to be optimum value.
- **When adjustment is incomplete**
  The playability and vibration proof are deteriorated.
- **Measuring instrument**
  Oscillator, double-pointer mV meter
- **Measuring point**
  SERTR1, SERTR2, TP, TE1, TE2
- **Test disc and setting state**
  SONY TYPE4, normal mode
- **Adjustment** : VR4

Connection diagram



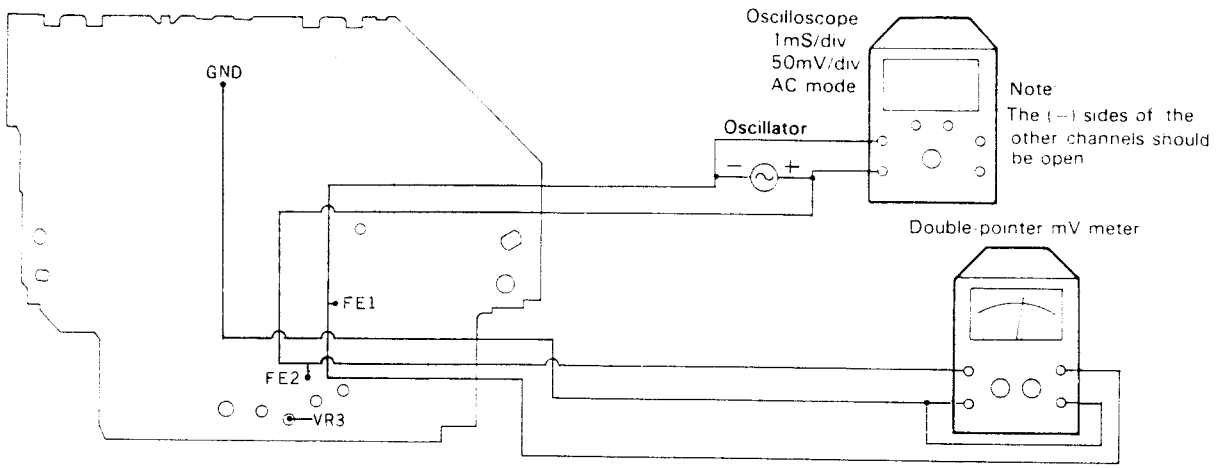
Adjusting procedure

1. Preset the oscillator. Set the output amplitude with no load to be 1Vp-p (at 1kHz).
   Note: The set value of the output level varies slightly depending on the oscillator. This set value is the one when the oscillator of about 500Ω output impedance is used. Adjustment should be made under the condition in which the servo can be activated stably even after the output of the oscillator was applied, causing no mistracking. Low output impedance provides low set output.
2. Make sure that the power is turned off and connect the measuring instruments as indicated in the above diagram.
3. Play back the first music of SONY TYPE4.
4. Adjust the tracking gain adjusting volume (VR4) so that the error of the double-pointer mV meter may be not more than 0±0.5dB (under the condition in which 1kHz output is generated from the oscillator).

■Adjusting the Focus Servo Loop Gain

- **Purpose**
  To adjust the focus servo loop gain to be optimum value.
- **When adjustment is incomplete**
  The playability and vibration proof are deteriorated. S detection is apt to fail.
- **Measuring instrument**
  Oscillator, double-pointer mV meter
- **Measuring point**
  TP FE1, FE2
- **Test disc and setting state**
  SONY TYPE4, normal mode
- **Adjustment** : VR3

Connection diagram



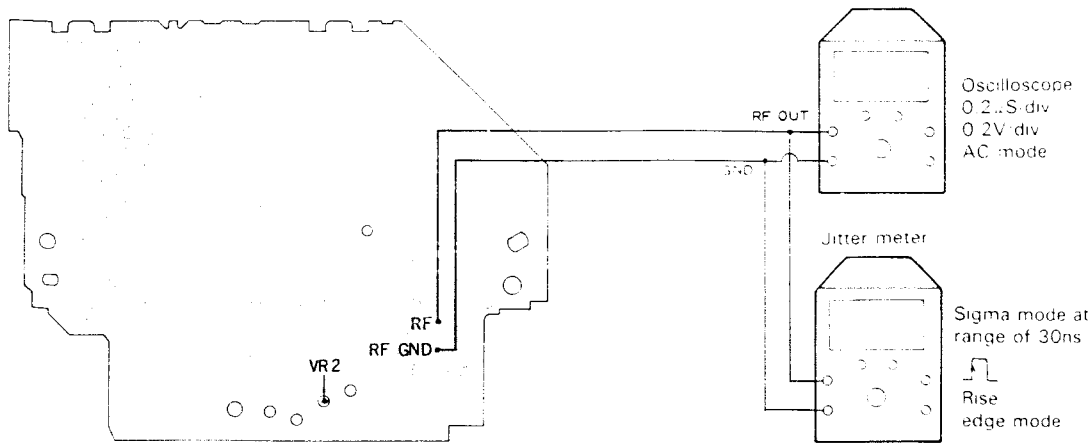
Adjusting procedure

1. Preset the oscillator. Set the output amplitude with no load to be 1Vp-p (at 1kHz).
   Note: The set value of the output level varies slightly depending on the oscillator. This set value is the one when the oscillator of about 500Ω output impedance is used. Adjustment should be made under the condition in which the servo can be activated stably even after the output of the oscillator was applied, causing no mistracking. Low output impedance provides low set output.
2. Make sure that the power is turned off and connect the measuring instruments as indicated in the above diagram.
3. Play back the first music of SONY TYPE4 in the normal mode.
4. Adjust the tracking gain adjusting volume (VR3) so that the error of the double-pointer mV meter may be not more than 0±0.5dB (under the condition in which 1kHz output is genereated from the oscillator).

■Adjusting the Focus Offset

- **Purpose**
  To adjust the focus servo bias to be optimum value.
- **When adjustment is incomplete**
  The focus is hard to be closed. Playability is deteriorated.
- **Measuring instrument**
  Oscilloscope
- **Measuring point**
  RF
- **Test disc and setting state**
  SONY TYPE4, normal mode
- **Adjustment** : VR2

Connection diagram



Adjusting procedure

1. Play back the first music in the normal mode.
2. Connect the RF OUT to the jitter meter (Meguro) and adjust the focus offset adjusting volume (VR2) so that the jitter may be optimized.

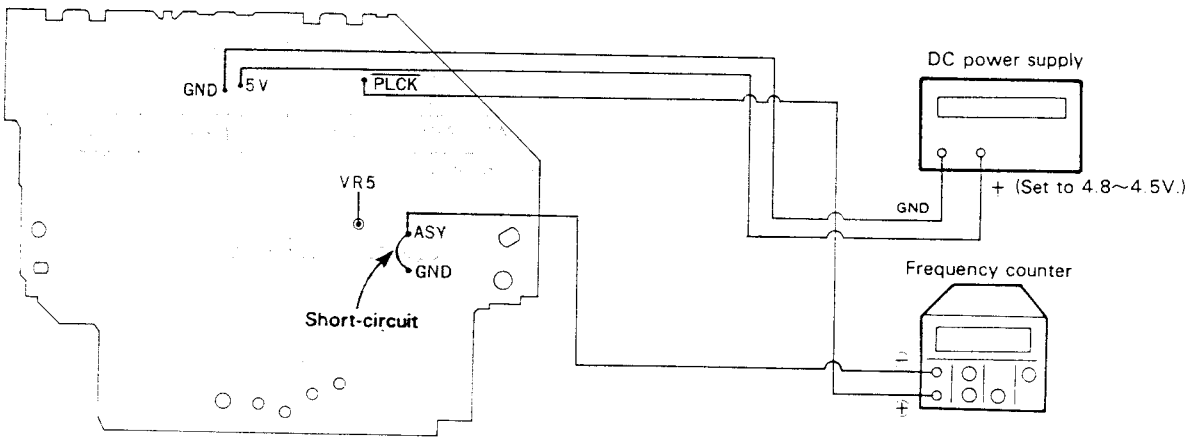
(When there is no jitter meter, observe the RF OUT based on GND by an oscilloscope and adjust VR2 so that RF may be maximized and the eye pattern may be omptimized.)

Note: Use the probe of 10 : 1 for connection to the jitter meter.

■Adjusting VCO Free-run Frequency

- **Purpose**
  To adjust the free-run frequency of reference clock for EFM decoder to be optimum value.
- **When adjustment is incomplete**
  Spindle lock is impossible. The sound is not emitted or breaks.
  The long access time is long. (22 music → 1 music or 1 music → 22 music by SONY TYPE4).
- **Measuring instrument**
  Frequency counter, various jigs for test mode
- **Measuring point**
  Pin 70 of $\overline{\text{PLCK}}$ CXD1167
- **Adjustment** : VR5

Connection diagram



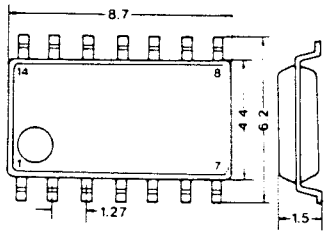
1. Remove the mechanical module from the set.
2. Short-circuit ASY to GND.
3. Connect A-Vcc and 5V to the DC power supply.
4. Turn ON the power.
5. Read the numeric value from the frequency counter.
6. Adjust to be F=4.20MHz± 10kHz.
7. Turn OFF the power.
8. Disconnect the connection.

■EXPLANATION OF IC's:

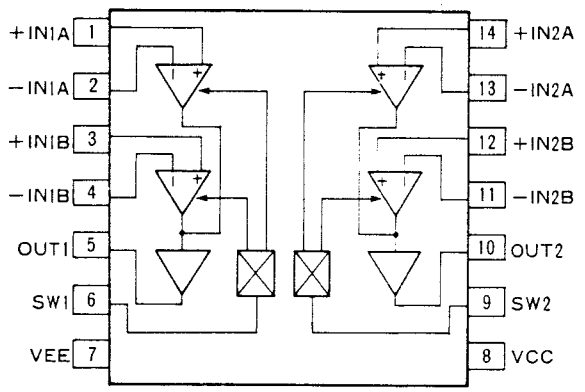
※IC's other than explained below are described in Service Manual 「EXPLANATION OF IC's」 Vol.2~Vol.4.

■BA3129F 051-1811-00 For Audio With SW Dual OP Amp

Outward Form

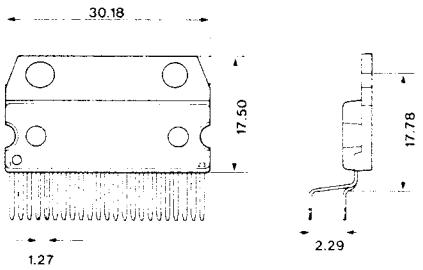


Block Diagram

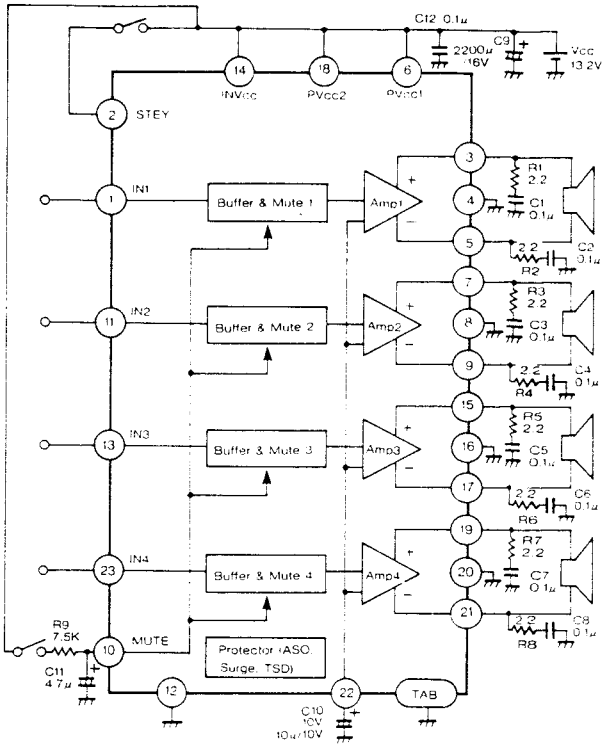


■HA13150 051-1810-00 19W×4ch BTL Power Amp

Outward Form

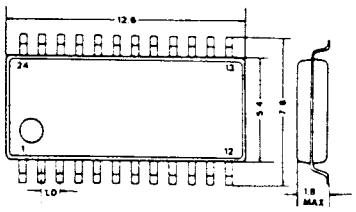


Block Diagram



■LA2230M 051-1625-00 RDS Decoder

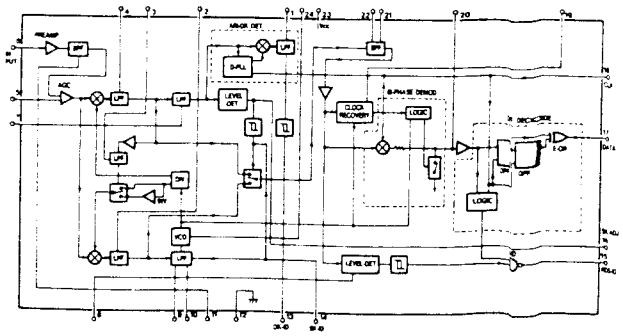
Outward Form



Function

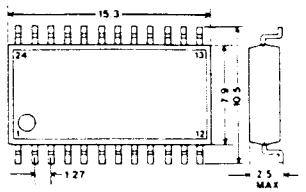
(1) DSB demodulation
(2) Sub-carrier wave regeneration
(3) Bit rate clock regeneration
(4) Data differential decoding
(5) ARI-SK discrimination
(6) ARI-DK discrimination
(7) RDS indicator driving
(8) ARI indicator driving
(9) 57kHz band pass filter

Block Diagram

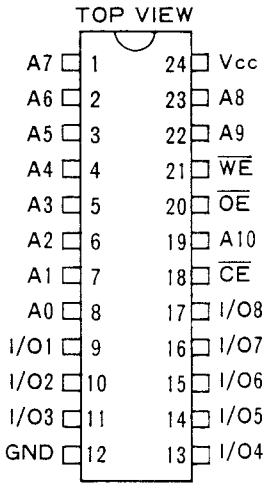


■LC3517BML-12 051-1046-46 2048ward×8bit static RAM

Outward Form

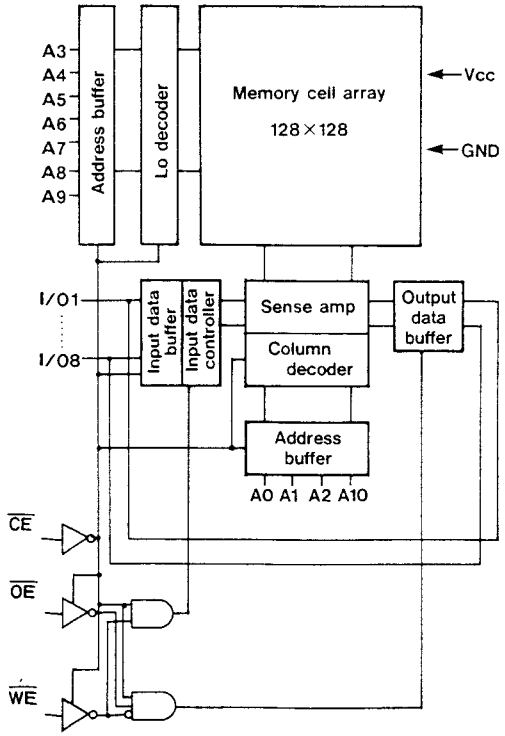


Terminal Connection



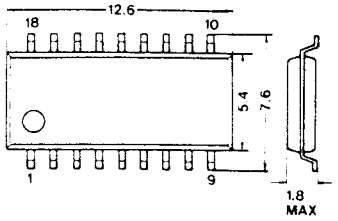
A0~A10	Address input
$\overline{WE}$	Read write control input
$\overline{OE}$	Output enable input
$\overline{CE}$	Chip enable input
I/O1~I/O8	Data I/O
Vcc/GND	Power Supply

Block Diagram

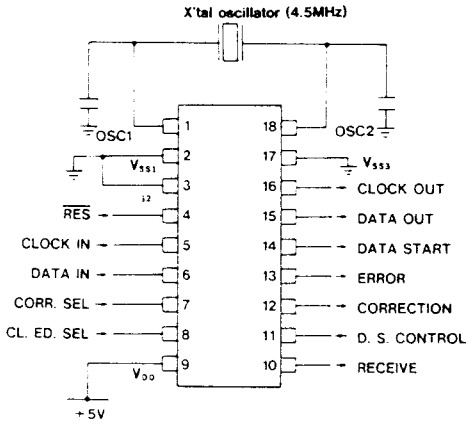


■LC7073M 051-1150-20 Sync/Error correction LSI for RDS

I. Outward Form



II. Terminal Connection

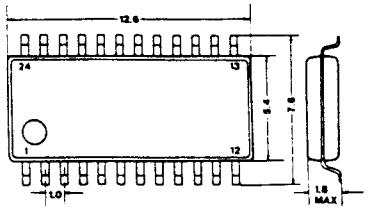


III. Terminal Connection Table

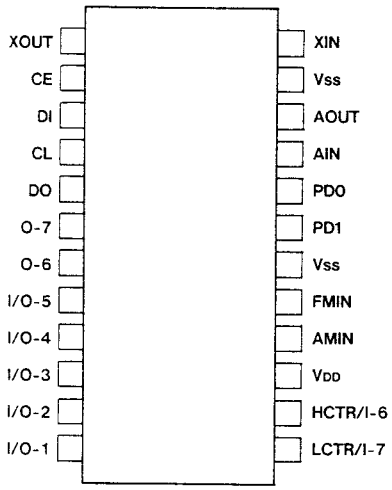
Pin No	Symbol	Function
1 18	OSC 1 OSC 2	Connection terminal for crystal oscillator Allows connection of 4.5MHz crystal
2 3 17	V_{ss1} V_{ss2} V_{ss3}	Ground
4	$\overline{RES}$	Reset terminal
5	CLOCK IN	RDS recovery clock input
6	DATA IN	RDS recovery data input
7	CORR SEL	Correction or non correction input for input signal
8	CL ED SEL	Serial output clock polarity setting input
9	V_{DD}	Power supply terminal (5V)
10	RECEIVE	After finishing a synchronous detection while serial output is made, L level output is applied In other cases, H level output
11	D S CONTROL	Data start signal control input.
12	CORRECTION	Correction output terminal
13	ERROR	Error output terminal
14	DATA START	Block data start signal output.
15	DATA OUT	Data output for serial output.
16	CLOCK OUT	Clock output for serial output

■LC72140M 051-1808-05 PLL FREQUENCY SYNTHESIZER

Outward Form



Terminal Connection



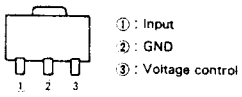
Terminal Description

Pin No.	Symbol	I/O	Function
1	X'tal	–	Crystal oscillator connection terminal (7.2MHz).
2	PLL CE	I	PLL IC serial communication chip enable input.
3	PLL DI	I	PLL IC serial communication data input.
4	PLL CL	I	PLL IC serial communication clock input.
5	PLL DO	O	PLL IC serial communication data output.
6	IF MUTE	O	IF mute output. Mute ON at "H".
7	$\overline{\text{IF REQ}}$	O	IF count request output. PLL frequency upon IF count measurement: "L" at divider output, and "H" at measurement completion.
8	LW/$\overline{\text{MW}}$	O	"H" at LW frequency output, "L" at MW & FM frequency output.
9	LO/$\overline{\text{DX}}$	O	Seek sensitivity output. Local("H")/DX("L"). Local seek: "H" for AS first round, "L" for others.
10	$\overline{\text{AM}}$+	O	"L" at MW & LW frequency output, "H" at FM frequency output.
11	$\overline{\text{FM}}$+	O	"L" at FM frequency output, "H" at MW & LW frequency output.
12	RDS LO/$\overline{\text{DX}}$	O	RDS sensitivity and ANT dump control in various seeks of preset call/scan, AS, 01 & 02 follow-up.
13	AM IF	I	AM IF count data input.
14	FM IF	I	FM IF count data input.
15	V_{DD}	–	Supply voltage terminal.
16	AM OSC	I	AM local oscillation signal input.
17	FM OSC	I	FM local oscillation signal input.
18	GND	–	GND terminal.
19 20	PD1 PDO	O	Charge pump output.
21 22	A IN A OUT	I O	Transistor connection terminal for the charge pump or low-pass filter amplifier.
23	GND	–	GND terminal.
24	X'tal	–	Crystal oscillator connection terminal (7.2MHz).

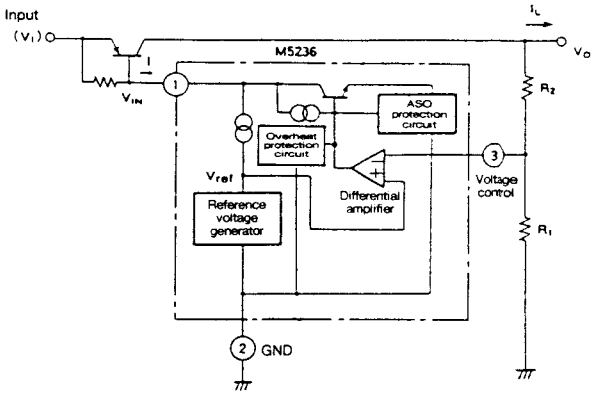
■M5236ML 051-1316-00 General Purpose Variable 3-Terminal Constant Voltage Source

Range of supply voltage : V_{IN}=3.5~36V
Range of output voltage : V_O=1.5~33V

Terminal Connection

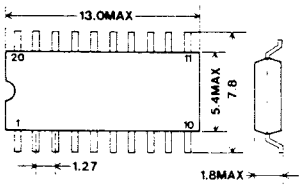


Block Diagram

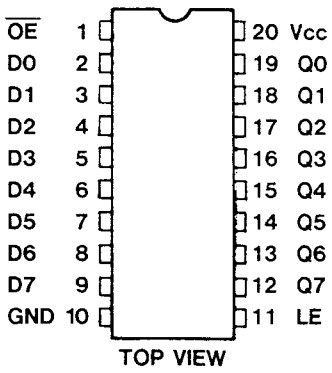


■TC74HC573AF 051-1051-05 Octal D-type Latch With 3-state Output

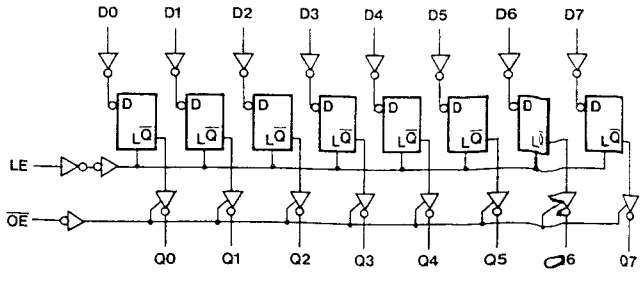
Outward Form



Terminal Connection



System Diagram



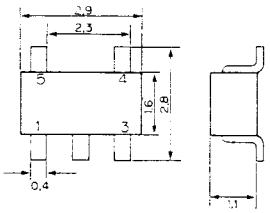
Truth Table

INPUTS			OUTPUTS
$\overline{OE}$	LE	D	Q(HC573A)
H	X	X	HZ
L	L	X	Qn
L	H	L	L
L	H	H	H

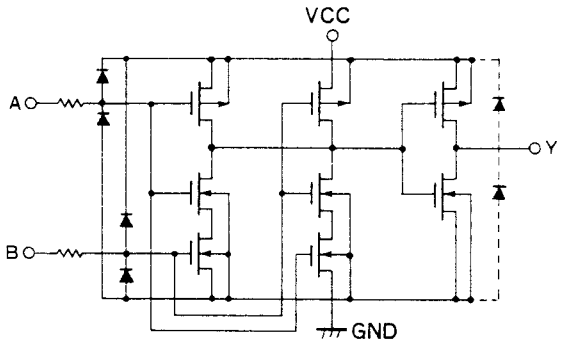
X : Don't Care
Z : High impedance

■SC7S08F 051-1738-35 / TC7S08F 051-1738-05 2 Input And Gate

Outward Form

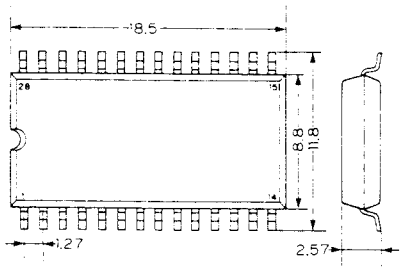


Block Diagram

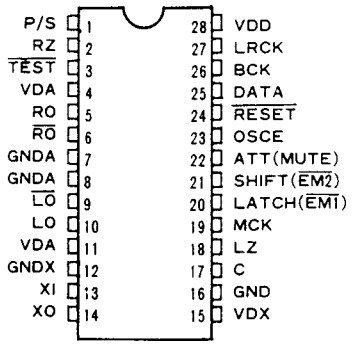


■TC9267F 051-1766-05 D/A Converter With Digital Filter

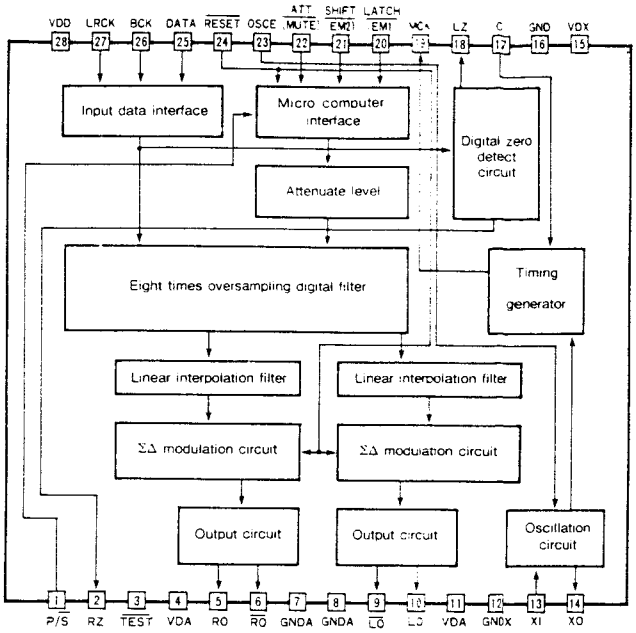
Outward Form



Terminal Connection



Block Diagram

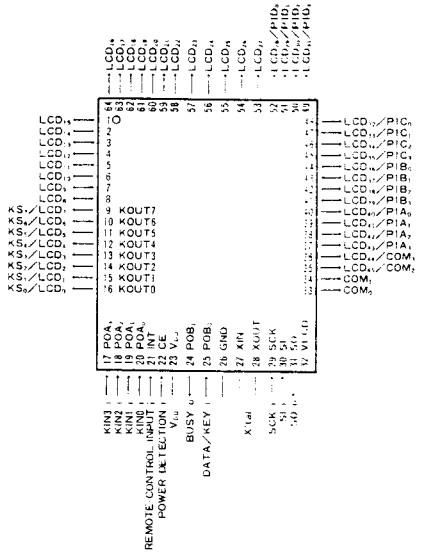

VDD LRCK BCK DATA RESET OSCE ATT/MUTE SHIFT/EM2 LATCH/EM1 MCK LZ C GND VDX
28 27 26 25 24 23 22 21 20 19 18 17 16 15
Input data interface
Micro computer interface
Digital zero detect circuit
Attenuate level
Eight times oversampling digital filter
Timing generator
Linear interpolation filter
Linear interpolation filter
ΣΔ modulation circuit
ΣΔ modulation circuit
Output circuit
Output circuit
Oscillation circuit
P/S RZ TEST VDA RO RO GNDA GNDA LO LO VDA GNDX XI XO
1 2 3 4 5 6 7 8 9 10 11 12 13 14

Pin Description

Pin No.	Pin Name	I/O	Function
1	P/$\overline{S}$	I	Pin for switching between serial and parallel control.
2	RZ	O	Pin for output of R-channel digital zero detection signal.
3	$\overline{TEST}$	I	Test pin. This pin is usually used at Low level.
4	VDA	–	Analog power pin for R-channel DA converter.
5	RO	O	Pin for normal output of R-channel data.
6	$\overline{RO}$	O	Pin for reversal output of R-channel data.
7	GNDA	–	Analog GND pin for R-channel DA converter.
8	GNDA	–	Analog GND pin for L-channel DA converter.
9	$\overline{LO}$	O	Pin for reversal output of L-channel data.
10	LO	O	Pin for normal output of L-channel data.
11	VDA	–	Analog power pin for L-channel DA converter.
12	GNDX	–	GND pin for oscillating element.
13	XI	I	Pins for connection of crystal oscillator. These pins generate clock signals necessary for the system.
14	XO	O	
15	VDX	–	Power pin for oscillating element.
16	GND	–	GND pin for logic element.
17	C	I	Pin for selection of clock signal.
18	LZ	O	Pin for output of L-channel digital zero detection signal.
19	MCK	O	Pin for output of system clock signal.
20	LATCH ($\overline{EM1}$)	I	Pin for input of attenuator data latch signal in serial control. Pin for selection of deemphasis filter mode in parallel control.
21	SHIFT ($\overline{EM2}$)	I	Pin for input of attenuator shift clock signal in serial control. Pin for selection of deemphasis filter mode in parallel control.
22	ATT (MUTE)	I	Pin for input of attenuator data in serial control. Pin for muting in parallel control. Mute is turned on at Low level.
23	OSCE	I	Pin for system clock control. The system clock stops at Low level.
24	$\overline{RESET}$	I	Reset pin.
25	DATA	I	Pin for input of data.
26	BCK	I	Pin for input of bit clock signal.
27	LRCK	I	Pin for input of L/R clock signal.
28	VDD	–	Power pin for logic element.

■μPD17106GC-516-3BE 051-1798-00 Front Panel Controller

Terminal Connection

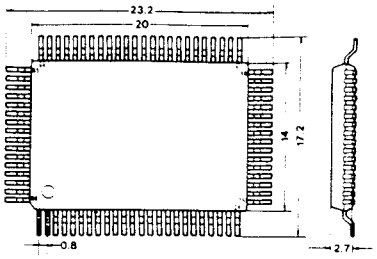


Terminal Description

Pin No.	Symbol	I/O	Function
1 ∫ 8	LCD15 ∫ LCD8	O	LCD controller/driver segment signal output.
9 ∫ 16	LCD7/KOUT7 ∫ LCD0/KOUT0	O	Key source signal output for the key matrix commonly used for LCD controller/driver segment signal output.
17 ∫ 20	KI3 ∫ KI0	I	Key source signal return input.
21	INT	I	Remote-control input terminal. Normally "H", "L" for data input.
22	CE	I	Power detection input. Power-on at "H", and power-off at "L"
23	V_{DD}	–	Supply voltage terminal.
24	BUSY	O	BUSY output port. H : BUSY, L : READY
25	$\overline{\text{LCD DATA/KEY COMMAND}}$	I	LCD data/key command switching detection input port. When the data is transferred at "H", it is judged to be the key data, remote-control data, command, or PIB input data. When the data is transferred at "L", it is judged to be LCD/DATA.
26	GND	–	Ground terminal.
27 28	X IN X OUT	–	Crystal connection terminal.
29	$\overline{\text{SCK}}$	I	Serial clock input. Serial data transfer clock input from the master microcomputer.
30	SI	I	Serial clock input. Serial data input from the master microcomputer.
31	SO	O	Serial clock output. Serial data output to the master microcomputer.
32	NC	–	Unused.
33 34	COM_0 COM_1	O	LCD COM signal output. { At static, 1/2, 1/3, 1/4 duty / At 1/2, 1/3, 1/4 duty
35 36	LCD_{45}/COM_2 LCD_{44}/COM_3	O	At 1/3, 1/4 duty: LCD COM signal output or LCD controller segment signal. At 1/4 duty: LCD COM signal output or LCD controller segment signal.
37 ∫ 40	LCD_{43}/PIA_0 ∫ LCD_{40}/PIA_3	O	LCD controller segment signal output or PIA_0~PIA_3 output ports.
41 ∫ 44	LCD_{39}/PIB_0 ∫ LCD_{36}/PIB_3	O	LCD controller segment signal output or PIB_0~PIB_3 output ports or PIB_0~PIB_3 input ports.
45 ∫ 52	LCD_{35}/PIC_0 ∫ LCD_{28}/PID_3	O	LCD controller segment signal output or PIC_0~PID_3 output ports.
53 ∫ 64	LCD_{27} ∫ LCD_{16}	O	LCD controller/driver segment signal output.

■μPD75516GF-490-3B9 051-1800-01 Master Micro Computer

Outward Form



Terminal Description

Pin No.	Symbol	I/O	Function
1 2	ANO AVref	–	GND terminal.
3 4	VDD	–	+5V supply voltage terminal.
5	+B REM	O	+B(AMP) REMOTE signal output port. Hi Active
6	ILL REM	O	ILL REMOTE signal output port. Hi Active.
7	NC	–	Unused.
8	VOL STB	O	Electronic volume IC. STB output port.
9	VOL DO	O	Electronic volume IC. DATA output port.
10	VOL CLK	O	Electronic volume IC. CLK output port.
11	WILL G	O	W-ILLUMI-Green output port. "H" for green, "L" for amber.
12	WILL A	O	W-ILLUMI-Amber output port. "L" for green, "H" for amber.
13	DISC IND	O	CD DISC IN indicator output port. H : Illuminated.
14	KEY/DATA	O	Serial communication line of the front panel controller (μPD17106). H : When the key/remote-control data or command is transmitted. L : When the LCD data is transmitted.
15	LCD DO	O	Serial communication line DATA output port of the front panel controller (μPD17106).
16	LCD SCK	O	Serial communication line SCK output port of the front panel controller (μPD17106).
17	LCD DI	I	Serial communication line DIN input port of the front panel controller (μPD17106).
18 19	GND	–	GND terminal.
20	PRO	O	Beep sensor tone output port, 4kHz.
21	LCD BUSY	I	Serial communication line BUSY input port of the front panel controller (μPD17106) H : BUSY
22 ∫ 24	GND	–	GND terminal.
25 ∫ 28	NC	–	Unused.
29	JIKOSIN	I	Self diagnosis input port. At power-on, setting to "H" enters the self diagnosis input mode.
30 ∫ 33	GND	–	GND terminal.
34 ∫ 39	NC	–	Unused.
40	NMI	O	DC mechanical module NMI output port. Turning ACC on switches from the STOP mode to the operation mode. Normally fixed at "L"
41	ACC CONT	O	ACC control port for the slave microcomputer. "H" at ACC ON. Hi Active. "L" at ACC OFF
42	GND	–	GND terminal.
43	TEL INT	I	TEL INT input port. "H" during TEL interrupt

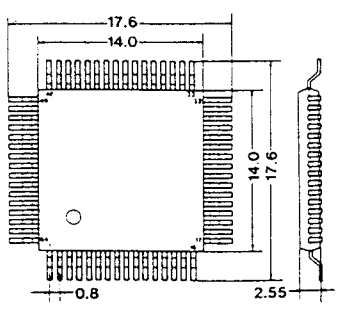
Pin No.	Symbol	I/O	Function
44	SRQ	I	Serial bus line SRQ port. A communication request signal is given from the slave at service request "L". Normally "H".
45 ∫ 47	GND	–	GND terminal.
48	EJECT	I	EJECT key detection port in the CD mode. "L" at key-on. Low Active.
49	GND	–	Unused.
50	SBI SI	I	Serial bus line SI port.
51	SBI SO	O	Serial bus line SO port.
52	SBI SCK	O	Serial bus line SCK port.
53	ACC IN	I	ACC power on/off(POWER DCP) detection port. ANDs ACC, POWER, and DCP. When either one of ACC, POWER, and DCP goes down, this port is turned to "L". "H" at ACC ON, and "L" at ACC OFF
54	GND	–	GND terminal.
55 56	XT1 XT2	–	Subsystem clock.
57	GND	–	GND terminal.
58 59	X1 X2	–	System clock.
60	RESET	I	Reset input port. Reset "L".
61	D OUT	O	Digital control output port. "H" at CD A/C.
62	Tun/AUX	O	Radio/AUX voice switching output port. "H" for the radio, "L" for the non-radio.
63	AC/AUX	O	Changer/AUX voice switching output port. "L" for the changer, "H" for the non-changer.
64	+5V REM	O	5V remote signal output port. Low Active. "H" at ACC OFF, "L" at ACC ON.
65	SYSTEM MUTE	O	SYSTEM MUTE output port. Low Active. "L" for MUTE ON, "H" for MUTE OFF.
66	NRA DOLBY ON	O	Dolby B/C control port. Dolby B or C ON : "H".
67	NRB DOLBY BC	O	Dolby B/C control port. C : "H", B : "L".
68	NC	–	Unused.
69	SIMU O	I	Initialization terminal. CDC7500R : H, CDC6500R : L
70 71	NC	–	Unused.
72 ∫ 76	GND	–	GND terminal.
77	L.R.Z	I	LRZ MUTE request signal input. When "H" is input, SYSTEM MUTE is output. Reset at "L".
78 ∫ 80	GND	–	GND terminal.

66Pin	67Pin	DOLBY
L	L	OFF
H	L	DOLBY B
H	H	DOLBY C

■μPD78012GC-518-AB8 051-1824-00

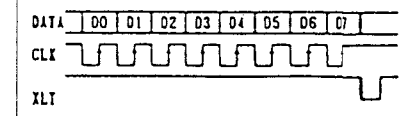
CD Mechanism Controller

Outward Form



Terminal Description

Pin No.	Symbol	I/O	Function
1	SRQ	–	C-BUS SRQ output terminal. Request signal to change the CD module condition and send the status to the master. Serves as an output terminal and outputs "Lo" when sending the status. Serves as an input terminal and becomes high impedance except when outputting "Lo". Normally "Hi".
2	SBI-C	O	SO/SI buffer input/output selector terminal. Used when installing an external bus buffer. Output : "Hi", Input : "Lo"
3 4 5	N.C	–	Unused.
6	DEMPH	O	De-emphasis control output terminal. Outputs "Hi" when playing back a disc with emphasis.
7	GFS	I	Represents the frame sync. lock condition of the CXD1167. Normal at "Hi", and error at "Lo".
8	FOK	I	A signal is input from the focus O.K. comparator output terminal of the CXA1082. Represents FOCUS O.K. at "Hi", and FOCUS N.G. at "Lo".
9	Vss	–	Ground.
10	$\overline{\text{A-MUTE}}$	O	Analog muting circuit control terminal. Muting is turned on at "Lo" output.
11	ROM	O	AUDIO/ROM mode control output terminal to the CXD1167. C-BUS CD-ROM OFF command effects the AUDIO mode and outputs "Lo", and CD-ROM ON command outputs "Hi".
12	MUTE	O	Digital mute control output terminal to the CXD1167. When ATTM of the internal register of the CXD1167 is "0", this terminal becomes "Lo" and an audio signal becomes normal. When it is "Hi", the no-sound condition of −∞dB results. "Lo" in the PLAY, FF/FB, or STOP mode, and "Hi" during a track search or pause.
13	CLK	O	Serial data transfer clock output terminal.
14	XLT	O	Latch output terminal.
15	DATA	O	Serial data output terminal to control the CD servo IC CXA1082 and signal processing IC CXD1167.
16	SQCK	O	CD IC SUB-Q read clock output terminal.
17	$\overline{\text{XRST}}$	O	Reset output terminal to the CXA1082 and CXD-1167. Outputs "Lo" for 200ms when SYS-POW2 is turned on.
18	SUBQ	I	Input terminal for the SUB-Q DATA output of the CXD1167.
19	SENSE	I	Inputs the outputs such as FZC, AS, TZC, STOP, BUSY from the CXA1082 and CXD1167 to control the CD.
20 21	MCW MCCW	O	Loading motor control terminal. Loads and ejects the disc.
22	SOL	O	Solenoid control terminal. Outputs "Hi" for 300ms when the disc starts loading and the photosensor's condition is ready for chucking.
23	CHA-SW	I	Chucking switch input terminal. "Lo" is input when the disc is loaded and the chucking switch is turned on.
24	Vss	–	Ground.
25 ∫ 30	N.C	–	Unused.
31	8/12	O	8/12 cm torquecontrol output terminal. Switches the spindle drive amplifier gain of the CXA1082. Output "Hi" when playing back 12-cm disc and "Lo" when playing back an 8-cm disc.
32	PS	O	AVREF power supply control terminal. "Lo" at CPU operation time and "Hi" at clock stop time.



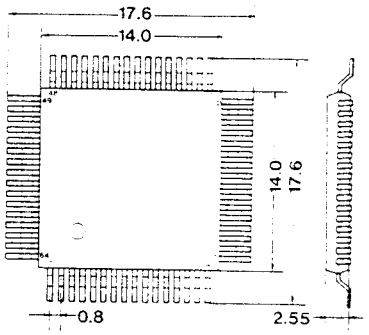
	LOADING	EJECT	BRAKE	STOP
MCW	H	L	H	L
MCCW	L	H	H	L

Pin No.	Symbol	I/O	Function
33	SYS-POW2	O	SYSTEM POWER2 control output terminal. At CD play time, this port is turned to "Hi" and supplies the power to the CXA1082 and CXD1167. At stop time, this port is turned to "Lo" after the spindle motor stops, and the CD IC is turned off.
34	SYS-POW1	O	SYSTEM POWER1 control output terminal. When ACC is ON and SEL of the pin 17 is turned to "Hi" to effect the operation mode, this terminal is turned to "Hi" to supply the power to the power motor, LED, and SYS-POW2 switching circuit. If SEL is turned to "Lo" by turning ACC off, this terminal is turned to "Lo" to turn off the power.
35	$\overline{RST}$	I	Reset input terminal.
36	SCOR	I	A signal is input from the subcode sync. SC.SI output terminal of the CXD1167. "Hi" is input at intervals 13.3ms in the PLAY mode to read SUB-Q DATA.
37	SEL	I	C-BUS ACC CONT input terminal. "Hi" is input at ACC ON, and "Lo" is input at ACC OFF.
38	$\overline{EJECT}$	I	EJECT KEY input terminal. Turning this terminal to "Lo" allows you to eject the disc without via the C-BUS.
39	N.C	–	Unused.
40	V_{DD}	–	Power terminal. (+5V)
41 42	X2 X1	O I	Clock terminal. (4MHz)
43	IC	–	Connect to GND.
44	N.C	–	Unused.
45	XT1	–	Connect to GND.
46	AVSS	–	GND for the A/D converter.
47	TEST	I	Key input terminal for the test mode. Used as an A/D port. Fixed at "Hi" except in the test mode.
48	$\overline{TEMP}$	I	Input port for temperature detection. Inputs to this terminal the temperature detection circuit with negative characteristic thermistor and reads a voltage value through 8-bit resolution A/D conversion. There are two detection methods available: conventional format and temperature newformat. The new format is effected by receiving a temperature new format command. a) Conventional format When the input voltage of this terminal comes to less than 2.5V, it is judged the high-temperature condition. If the PLAY mode has been effected, the CD stops automatically. At 2.7V or higher, temperature N.G. condition is reset to enable operation. b) New format When the input voltage of this terminal comes to less than 2.5V in a temperature increase process, it is judged to be 78°C, MECH ERROR STATUS b3 is set, and SRQ is sent. When it comes to less than 2.3V, it is judged to be 83°C, MECH ERROR STATUS b4 is set, and SRQ is sent. In the high-temperature condition as well, the CD continues to play. When the input voltage of this terminal comes to 2.5V or higher in a temperature decrease process, MECH ERROR STATUS b4 is cleared and SRQ is sent. After that, when the voltage comes to 2.7V or higher, MECH ERROR STATUS b3 is cleared and SRQ is sent.
49 50 51 52	A C E F	I	Photosensor input terminal. Used to detect the loading, chucking, and other conditions of the disc. When no disc has been inserted, "Lo" is input to the terminals A~F.
53 54	N.C	–	Unused.
55	VREF	–	Reference voltage for the A/D converter. (+5V)
56	AVdd	–	Power source for the A/D converter. (+5V)
57 ~ 61	N.C	–	Unused.

Pin No.	Symbol	I/O	Function
62	SO/SI	I/O	C-BUS serial data bus terminal.
63	NMI	I	Non-maskable interrupt request terminal. Clears the clock stop mode.
64	SCK	I	C-BUS serial clock input terminal. Normally "Hi".

■μPD78013GC-513-A88 051-1799-01 Tuner Controller

Outward Form



Terminal Description

Pin No.	Symbol	I/O	Function
1	SD UP	O	Output when measuring a PLL setting IF count.
2	LPF CONT	O	PLL low-pass filter control terminal.
3	RDS MUTE	O	"H" is output for 1 second both at power (POWER & ACC) on and AM to FM band switching.
4 ~ 7	OUT1 ~ OUT4	O	"H"/"L" is simply output by receiving an arbitrary command from the master.
8	NC	–	Unused.
9	GND	–	GND terminal.
10 ~ 17	SRAM AD0 ~ SRAM AD7	I/O	SRAM control Address & data line. Port commonly used for the lower 8-bit address and 8-bit data.
18 ~ 20	SRAM A8 ~ SRAM A10	O	SRAM control Address line. Upper 3-bit address output only port.
21	NC	–	Unused.
22	$\overline{SRAM\ CE}$	O	SRAM control chip enable. "L" output at any time while the power (POWER & ACC) is turned on.
23	S CW	I	Initial setting CW detection enable("H")/disable("L").
24	GND	–	GND terminal.
25	S RDS IC	I	Initial setting RDS-IC selection. PHILIPS("H")/SANYO("L"). Disabled when RDS ID signal is at "H" and enabled at "L".
26	S SD UP	I	Initial setting SD UP enable("L")/disable("H").
27	DYNAS 2	O	DYNAS-related signal output. "L" output at all timings which turn IF MUTE to "H".
28	DYNAS	O	DYNAS-related signal output.
29	REM	O	Remote signal output. "L" output at any time while the power (POWER & ACC) is turned on.
30	R MUTE	O	RADIO MUTE output. MUTE ON at "L". Turn on when changing the reception frequency.
31	$\overline{SRAM\ RD}$	O	SRAM control Data read signal. "L" output when executing a data read instruction from the SRAM.
32	$\overline{SRAM\ WR}$	O	SRAM control Data write signal. "L" output when executing a data write instruction to the SRAM.
33	NC	–	Unused.
34	SRAM ASTB	O	SRAM control timing signal. Always output by effecting the memory expansion mode.
35	RESET	I	Microcomputer reset signal.
36	NC	–	Unused.

Pin No	Symbol	I/O	Function
37	ACC CONT	I	ACC signal (Terminal interrupt). "H" at ACC ON, "L" at ACC OFF.
38	RDS IC CLK	I	RDS IC communication, Clock input. (Terminal interrupt)
39	RDS IC RESET	O	RDS IC reset signal output. "L" is output immediately before setting the frequency for the PLL, and it is turned to "H" when starting to take in the RDS data after completing communications with the PLL IC.
40	VDD		Supply voltage terminal.
41 42	XTAL	I	Main clock oscillator(8.38MHz) connection terminal.
43	GND	—	GND terminal.
44	NC	—	Unused.
45	$\overline{\text{ST ID}}$	I	Stereo signal input. Stereo("L")/monaural("H").
46	A GND	—	A/D converter GND terminal.
47	S Meter	I	Electric field intensity (S meter) input (A/D conversion).
48	CW	I	CW(carrier) signal input(A/D conversion). Only when initial setting CW detection is enabled.
49	SD	I	Station enable detection signal input.
50	$\overline{\text{RDS ID}}$	I	RDS station recognition signal input. RDS station("L").

Pin No.	Symbol	I/O	Function
51	$\overline{\text{SK ID}}$	I	ARI station SK signal input. SK-ON("L").
52	$\overline{\text{DK ID}}$	I	ARI station DK signal input. DK-ON("L").
53	RDS IC DATA	I	RDS IC communication data input. The port is read directly at clock interrupt time.
54	RDS IC START	I	RDS IC communication data list signal input. The port is read directly at clock interrupt time.
55	A VDD		A/D converter supply power.
56	A VREF	I	A/D converter reference voltage input.
57	PLL DI	I	PLL IC serial communication data input. Takes in the IF count data.
58	PLL DO	O	PLL IC serial communication data output. Sets the frequency divider, general purpose port data, etc.
59	PLL CLK	O	PLL IC serial communication clock output. Clock frequency: 524kHz.
60	PLL CE	O	PLL IC serial communication chip enable output.
61	$\overline{\text{C-BUS SRQ}}$	O	C-BUS communication SRQ output.
62	C-BUS SBI	I	C-BUS communication data input.
63	C-BUS SBO	O	C-BUS communication data output.
64	C-BUS SCK	I	C-BUS communication clock input. The clock frequency depends on the master microcomputer.

■PARTS LIST:

◎Electrical section

SWITCH PWB CDC7500R·CDC6500R

REF NO.	PART NO.	DESCRIPTION	QTY
D101-104	001-0516-00	DIODE MA111	4
D107,108	001-0525-00	DIODE IMN10	2
D105,106	001-0644-00	DIODE MA113	2

REF NO.	PART NO.	DESCRIPTION	QTY
IC101	051-1798-00	IC μPD17106GC-516-3B8	1
X101	060-0318-00	CERA-RESONATOR *4.5MHz	1
C101	178-2232-05	CHIP-C 0.022μF	1

MAIN PWB CDC7500R·CDC6500R

REF NO.	PART NO.	DESCRIPTION	QTY
D304	001-0188-01	DIODE 1S1885A	1
D401-403 501-503,505	001-0330-00 001-0352-00 001-0352-01 001-0638-00	DIODE 1SS119 1SS176 1SS178 WG713A	7
D101	001-0366-00	DIODE LTZ-MR15	1
D203	001-0377-33 001-0376-33 001-0400-33	DIODE MA4056H MTZ5.6JC HZS5.6JB3	1
D303,509	001-0377-47 001-0376-48 001-0400-47	DIODE MA4091M MTZ9.1JC HZS9.1JB2	2
D103	001-0377-48 001-0376-49 001-0400-48	DIODE MA4091H MTZ10JA HZS9.1JB3	1
D102,105	001-0378-00	DIODE 1SV125	2
D202	001-0412-17	LED GL-3HD8	1
D510	001-0423-31 001-0421-31 001-0425-31	DIODE MA4180 MTZJ18 HZS18J	1
D504	001-0466-00 001-0499-00 001-0626-00	DIODE S5688B ERA15-01 1A2	1
D104,106,201 204-206,301 302,506	001-0516-00 001-0517-00	DIODE MA111 1SS355	9
L102	010-2003-04	COIL	1
L105	010-2174-28	COIL*220μH	1
L501	010-2174-36	COIL*1mH	1

REF NO.	PART NO.	DESCRIPTION	QTY
L104	010-2199-40	COIL*220μH	1
L101	010-2230-00	COIL*0.15μH	1
L103	010-2230-14	COIL	1
L106,107	010-2230-26	COIL	2
L108	010-2230-30	COIL	1
L201	010-2230-38	COIL*220μH	1
VR301	012-4318-09	VARIABLE-R*47k	1
VR102,103	012-5123-06	VARIABLE-R*10k	2
VR101	012-5123-15	VARIABLE-R*470k	1
R501	032-0108-00	FLAME-PROOF-R 1.8Ω	1
C146	042-0200-00	TANTALUM-C 10V 47μF	1
C349	042-0334-22	ELECTRO-C 16V 10μF	1
C344	042-0334-27	ELECTRO-C 10V 33μF	1
C361,364,366 367	042-0397-00	CHIP-C 16V 1μF TAN	4
C326,337	042-0397-02	CHIP-C 35V 0.33μF TAN	2
C315,316,320 327,334,338	042-0398-01	CHIP-C 10V 4.7μF TAN	6
C319,333,506	042-0403-01	CHIP-C 16V 10μF TAN	3
C144,505	042-0406-01	CHIP-C 6.3V 47μF TAN	2
C122,129-131 204	042-0443-01	ELECTRO-C 6.3V 47μF	5
C132,134,311 312,328,339 360,362,363 365,510	042-0443-05	ELECTRO-C 16V 10μF	11
C139	042-0443-08	ELECTRO-C 16V 22μF	1
C116,133,141 302,305,321	042-0443-13	ELECTRO-C 35V 4.7μF	6

REF NO.	PART NO.	DESCRIPTION	QTY
C140,203,502	042-0443-16	ELECTRO-C 50V 1μF	3
C508	042-0452-01	ELECTRO-C 10V 220μF	1
C350	042-0465-00	ELECTRO-C 16V 3300μF	1
IC402	051-0160-56 051-0160-06	IC HD74LS07FPD SN74LS07NS	1
IC101,308	051-0350-55	IC NJM4558M	2
IC303,304 307	051-0556-01	IC NJM2058M	3
IC305	051-0866-16	IC LC7537NE	1
IC204	051-0869-05	IC MB3771PF(-G)	1
IC202	051-1046-46	IC LC35178ML-12	1
IC203	051-1051-05 051-1051-35	IC TC74HC573AF MC74HC573AF	1
IC103	051-1150-20	IC LC7073M	1
IC502	051-1316-00	IC M5236ML	1
IC501	051-1518-00	IC AN8005M	1
IC104	051-1625-00	IC LA2230M	1
IC201	051-1799-01	IC μPD78013GC-513-AB8	1
IC205	051-1800-01	IC μPD75516GF-490-3B9	1
IC102	051-1808-05	IC LC72140M	1
IC306	051-1810-00	IC HA13150	1
IC301,302	051-1811-00	IC BA3129F	2
X103	060-0115-04	CERA-RESONATOR*456k	1
SUP101	060-0122-10	SURGE PROTECTOR	1
X202	060-0266-00	CERA-RESONATOR*4.19MHz	1
X102	060-0270-00	CERA-RESONATOR*4.0MHz	1
X201	060-0320-00	CERA-RESONATOR*KBR8.38MW	1
X101	061-1066-00	CRYSTAL*7.2MHz	1
Q104,514,515 517	100-1162-00 101-0709-00	TRANSISTOR 2SA1162 2SB709	4
Q105,501,507	100-1298-00	TRANSISTOR 2SA1298	3
Q509,518	101-1143-00	TRANSISTOR 2SB1143	2
Q502	101-1237-00	TRANSISTOR 2SB1237	1
Q503,508	101-1243-00 100-1428-00	TRANSISTOR 2SB1243 2SA1428	2
Q504,510,512	102-2712-00 102-2412-00 103-0601-00	TRANSISTOR 2SC2712 2SC2412 2SD601	3
Q106,107	102-2712-51	TRANSISTOR 2SC2712GL	2
Q101,303-307 701-704	103-1306-00	TRANSISTOR 2SD1306	10
Q519	103-1858-00	TRANSISTOR 2SD1858	1
Q203,204	103-1996-00	TRANSISTOR 2SD1996	2
Q301,516	103-2118-00	TRANSISTOR 2SD2118	2
Q108,302	108-0241-50	TRANSISTOR 2SK241	2
Q202	125-0002-03 125-0001-02 125-0014-03	TRANSISTOR RN2403 UN2112 DTA124EK	1

REF NO.	PART NO.	DESCRIPTION	QTY
Q110	125-0002-06 125-0014-06	TRANSISTOR RN2406 DTA143ZK	1
Q102,103,109 111,201,206 401	125-2004-03 125-2005-02 125-2020-03	TRANSISTOR RN1403 UN2212 DTC124EK	7
Q505,506,511	125-2004-06 125-2020-06	TRANSISTOR RN1406 DTC143ZK	3
C340-343 345-348	172-1041-11	POLYESTOR-C 0.1μF	8
C119	172-6831-11	POLYESTOR-C 0.068μF	1
C351	173-1041-10	POLYESTOR-C 0.1μF	1
C112-115,401	176-1011-00	CHIP-C 100pF	5
C123	176-1501-00	CHIP-C 15pF	1
C124	176-1801-00	CHIP-C 18pF	1
C135	176-1811-00	CHIP-C 180pF	1
C213	176-2096-00	CHIP-C 2pF CK	1
C104,106,308 310	176-2201-00	CHIP-C 22pF	4
C318,335	176-2701-00	CHIP-C 27pF	2
C313,314	176-3301-00	CHIP-C 33pF	2
C208	176-4701-00	CHIP-C 47pF	1
C202,212,507	178-1022-05	CHIP-C 1000pF	3
C118,121,136 143,145,201 205,209	178-1032-05	CHIP-C 0.01μF	8
C370	178-1042-05	CHIP-C 0.1μF	1
C322,329	178-2222-05	CHIP-C 2200pF	2
C101-103,108 109,111,127 369	178-2232-05	CHIP-C 0.022μF	8
C307,309,352 353,354,355	178-3312-05	CHIP-C 330pF	6
C137,138,325 332,368	178-3322-05	CHIP-C 3300pF	5
C117,125,128	178-3332-05	CHIP-C 0.033μF	3
C148	178-4712-05	CHIP-C 470pF	1
C105	178-4722-05	CHIP-C 4700pF	1
C503	178-4732-05	CHIP-C 0.047μF	1
C126	178-6822-05	CHIP-C 6800pF	1
C323,324,330 331	178-8232-05	CHIP-C 0.082μF	4
C107,303,304 371	183-1063-31	ELECTRO-C 16V 10μF	4
C211	183-1063-32	ELECTRO-C 16V 10μF	1
C120,336	183-1073-21	ELECTRO-C 10V 100μF	2
C317,301,306 356-359,509	183-4753-51	ELECTRO-C 35V 4.7μF	8
C501	184-4763-41	ELECTRO-C 25V 47μF	1

CD-MECHANISM MECHA-PWB

REF NO.	PART NO.	DESCRIPTION	QTY
D101	001-0543-00	DIODE MA291	1
C101	042-0397-00	CHIP-C 16V 1μF TAN	1
C102	042-0427-03	CHIP-C 25V 15μF TAN	1
IC101	051-1014-05 051-1014-35	IC TA7291F MC13591M	1

REF NO.	PART NO.	DESCRIPTION	QTY
Q106	101-1188-50	TRANSISTOR 2SB1188	1
Q105	102-2712-07	TRANSISTOR 2SC2712	1
C103	178-1032-05	CHIP-C 0.01μF	1

CD-MECHANISM CDM-PWB

REF NO.	PART NO.	DESCRIPTION	QTY
D205	001-0528-31 001-0574-31	DIODE MA8056L DTZ5.6A	1
D201-204	001-0563-00	DIODE GL380	4
TH201	002-0214-05	THERMISTOR	1
R208	032-0092-07	CHIP-R 12k(±1%)	1
R212	050-0122-02	COMPONENT-CCT*100kx4	1
R210,211	050-0122-05	COMPONENT-CCT*33kx4	2
R223	050-0132-00	COMPONENT-CCT*10kx2	1
R206	050-0132-01	COMPONENT-CCT*33kx2	1
IC201	051-1292-00	IC NJM4565M-D	1
IC202	051-1824-00	IC μPD78012GC-518-AB8	1
X201	060-0322-00	CERA-RESONATOR*4.00MHz	1
Q202	101-1188-50	TRANSISTOR 2SB1188	1
Q201	103-1754-64	TRANSISTOR 2SD1754	1

REF NO.	PART NO.	DESCRIPTION	QTY
Q204	125-0002-02 125-0001-01	TRANSISTOR RN2402 UN2111	1
Q203	125-2004-02 125-2005-01	TRANSISTOR RN1402 UN2211	1
C207,210,211 214	163-1063-30	CHIP-C 16V 10μF	4
C217	163-1073-10	CHIP-C 6.3V 100μF	1
C201,206	163-2263-10	CHIP-C 6.3V 22μF	2
C202,216	163-4763-30	CHIP-C 16V 47μF	2
C209,213,220	176-1011-00	CHIP-C 100pF	3
C208,212	176-4711-00	CHIP-C 470pF	2
C219	178-1022-05	CHIP-C 1000pF	1
C204-206,215	178-2232-05	CHIP-C 0.022μF	4
C218	178-4712-05	CHIP-C 470pF	1

CD-MECHANISM FLOAT-PWB

REF NO.	PART NO.	DESCRIPTION	QTY
D1-3	001-0367-00	DIODE 1SS226	3
L1	010-2155-03	COIL*10μH	1
VR5	012-4997-02	VARIABLE-R*1k	1
VR1-4	012-4997-07	VARIABLE-R*22k	4
R49, 53-56 59-61, 63-66 68-71	032-0092-03	CHIP-R 15k(±1%)	16
R50, 52, 57, 58 62, 67	032-0092-04	CHIP-R 30k(±1%)	6
R24, 26	032-0092-05	CHIP-R 100k(±1%)	2
C29, 30, 33	042-0397-00	CHIP-C 16V 1μF TAN	3
C19, 22	042-0397-03	CHIP-C 25V 0.47μF TAN	2
C1, 44	042-0397-05	CHIP-C 6.3V 3.3μF TAN	2
C37	042-0398-01	CHIP-C 10V 4.7μF TAN	1
C3, 5, 25, 47	042-0416-01	CHIP-C 6.3V 10μF TAN	4
C27, 60	042-0449-00	CHIP-C 4V 22μF TAN	2
IC8, 9	051-0556-01	IC NJM2058M	2
IC1	051-1237-10	IC CXA1081Q	1
IC2	051-1238-00	IC CXA1082BQ	1
IC3	051-1377-00	IC CXD1167Q	1
IC5	051-1497-00	IC TA2009F	1
IC6	051-1738-35 051-1738-05	IC SC7S08F TC7S08F	1
IC4	051-1766-05	IC TC9267F	1
X1	061-1087-50	CRYSTAL*16MHz	1
Q1, 6, 8, 10, 12 14, 16, 18, 20	101-1188-50	TRANSISTOR 2SB1188Q, R	9
Q2, 3	102-2712-00 103-0601-00	TRANSISTOR 2SC2712 2SD601	2
Q5, 7, 9, 11, 13 15, 17, 19	103-1766-50	TRANSISTOR 2SD1766Q, R	8
Q4	125-2004-02 125-2005-01	TRANSISTOR RN1402 UN2111	1
C2, 24	163-1073-10	CHIP-C 6.3V 100μF	2
C58	163-4763-30	CHIP-C 16V 47μF	1
C65	176-1011-00	CHIP-C 100pF	1
C61	176-1201-00	CHIP-C 12pF	1
C6	176-1801-00	CHIP-C 18pF	1
C62	176-2096-00	CHIP-C 2pF	1
C15, 16	176-2201-00	CHIP-C 22pF	2
C40, 49-56	176-4702-00	CHIP-C 47pF	9
C17, 20, 34, 63 66-68	178-1022-05	CHIP-C 1000pF	7
C4, 7, 8, 21, 26 42, 43, 46, 48 57	178-1032-05	CHIP-C 0.01μF	10
C11, 14, 23, 35 36, 38, 41, 45 59, 64	178-1042-05	CHIP-C 0.1μF	12
C31	178-2222-05	CHIP-C 2200pF	1
C9, 10, 18, 39	178-3332-05	CHIP-C 0.033μF	4
C28	178-4722-05	CHIP-C 4700pF	1
C32	178-4732-05	CHIP-C 0.047μF	1

● **How to read resistor**

Resistors are deleted from the table of electric components, (except special resistors).
They can be converted to product Nos. as follows.

Film resistor (Carbon film resistor/Metal film resistor)

□□□-□□□□-□□

Classification	Resistance ❶	Tolerance of the value of resistance		Rated power		Shape	
111 (Carbon film resistor)		0	± 2%	0		0	
	Example	1	± 5%	1	⅛W Approx. 3.7mm	1	Horizontal
	33Ω=330	2		2	¼W Approx. 6.5mm	2	Vertical
	33kΩ=333	3		3		3	
		4		4	½W Approx. 9mm	4	
				7	⅛W Approx. 3.5mm		
				8	¼W Approx. 6.6mm		
				9	½W Approx. 3.2mm		
114 (Metal film resistor)		0		1	1W Approx. 9.0mm	0	
		1	± 5%	2	2W Approx. 11.0mm	1	Horizontal
		2		3	3W Approx. 15.0mm	2	

(Example)

Carbon film resistor 1kΩ ±5% ¼W Vertical

[1][1][1]-[1][0][2][1]-[9][2]

Note 1. The first two of three digits representing resistance are effective digits and the last one represents number of "0" following this.
Unit is given in ohm (Ω).

Chip resistor

□□□-□□□□-□0

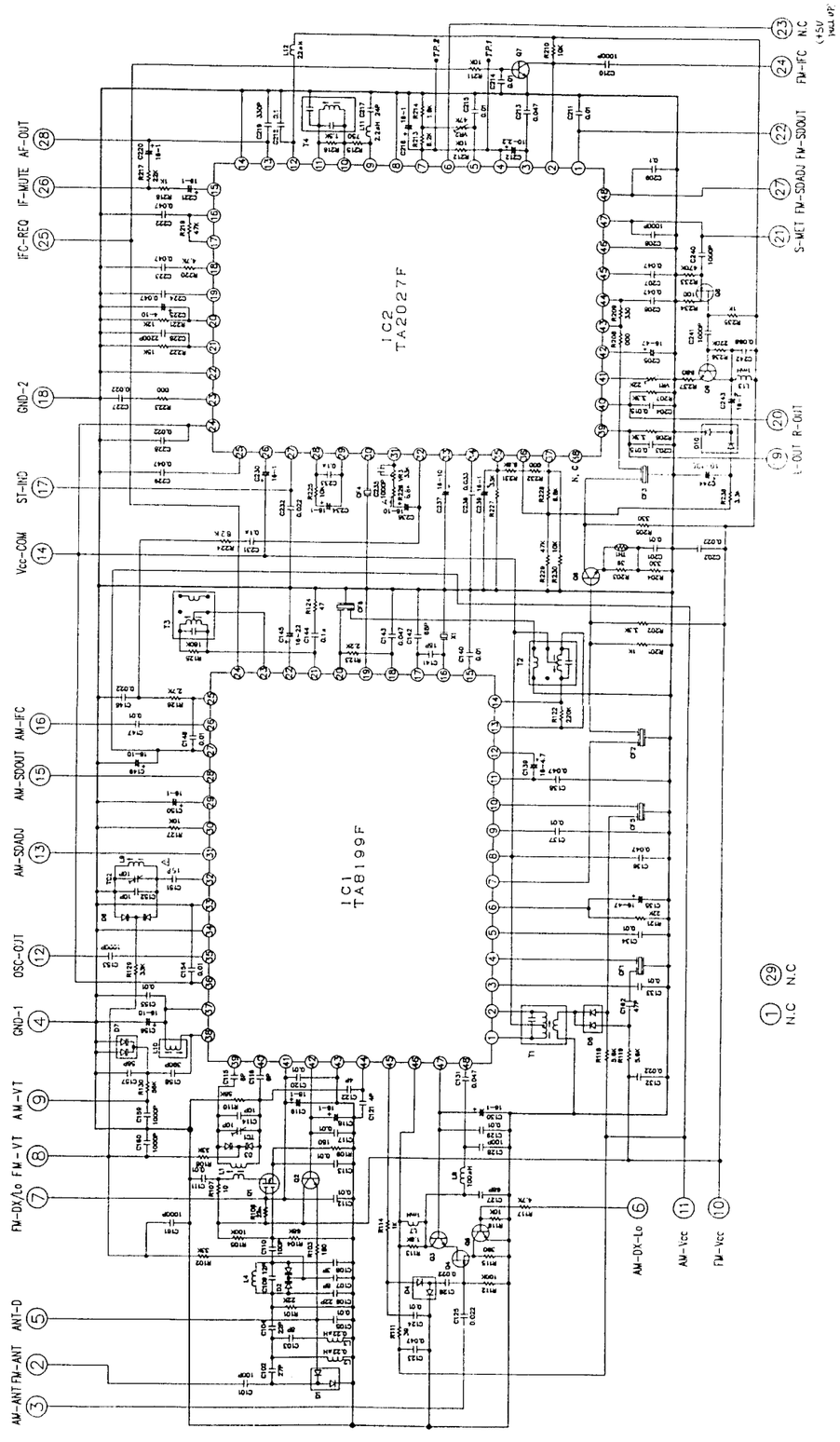
Classification	Resistance ❶	Tolerance of the value of resistance		Rated power	
116	Example	0	for 0Ω resistor	0	for 0Ω resistor
	33Ω=330	1	± 5%	1	⅛W 1.6mm 3.2mm
	33kΩ=333	2	±10%	2	
117		0	for 0Ω resistor	0	for 0Ω resistor
		1	± 5%	1	¼W 1.25mm 2.0mm
		2	±10%	2	
118		0		0	
		1	± 5%	1	½W 3.2mm 4.5mm
		2	±10%	2	
119		0	for 0Ω resistor	0	for 0Ω resistor
		1	± 5%	1	⅛W 0.8mm 1.6mm
		2	±10%	2	

(Example)

Chip resistor (3.2mm×1.6mm) 1kΩ ±5% ⅛W

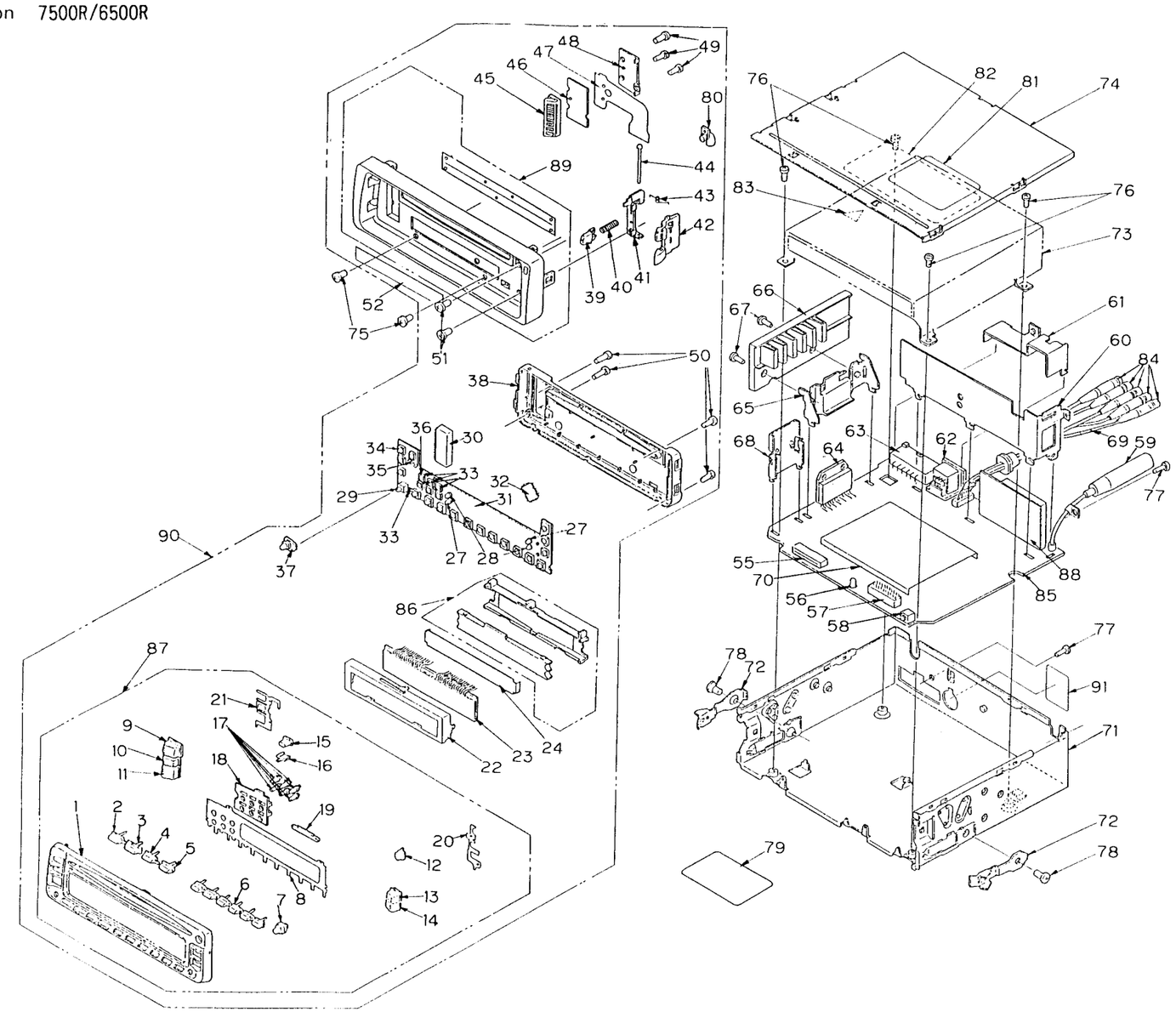
[1][1][6]-[1][0][2][4]-[1][0]

■FM/MW/LW TUNER BLOCK: 880-2075A



■EXPLODED VIEW・PARTS LIST:

©Main section 7500R/6500R



NO	PART NO.	DESCRIPTION	QTY
1	370-5437-02 370-5437-03	ESCUTCHEON(CDC7500R) (CDC6500R)	1
2	382-3316-01	BUTTON*CD	1
3	382-3317-00	BUTTON*TUNER	1
4	382-3318-00 382-3318-02	BUTTON*CD-CHNG(CDC7500R) (CDC6500R)	1
5	382-3319-01	BUTTON*RDS	1
6	382-3321-00	BUTTON*1-6	1
7	382-3323-00	BUTTON*T-M	1
8	373-0735-02 373-0735-03	DIAL COVER(CDC7500R) (CDC6500R)	1
9	382-3312-00	BUTTON*UP	1
10	382-3311-00	BUTTON*A-M	1
11	382-3313-00	BUTTON*DOWN	1

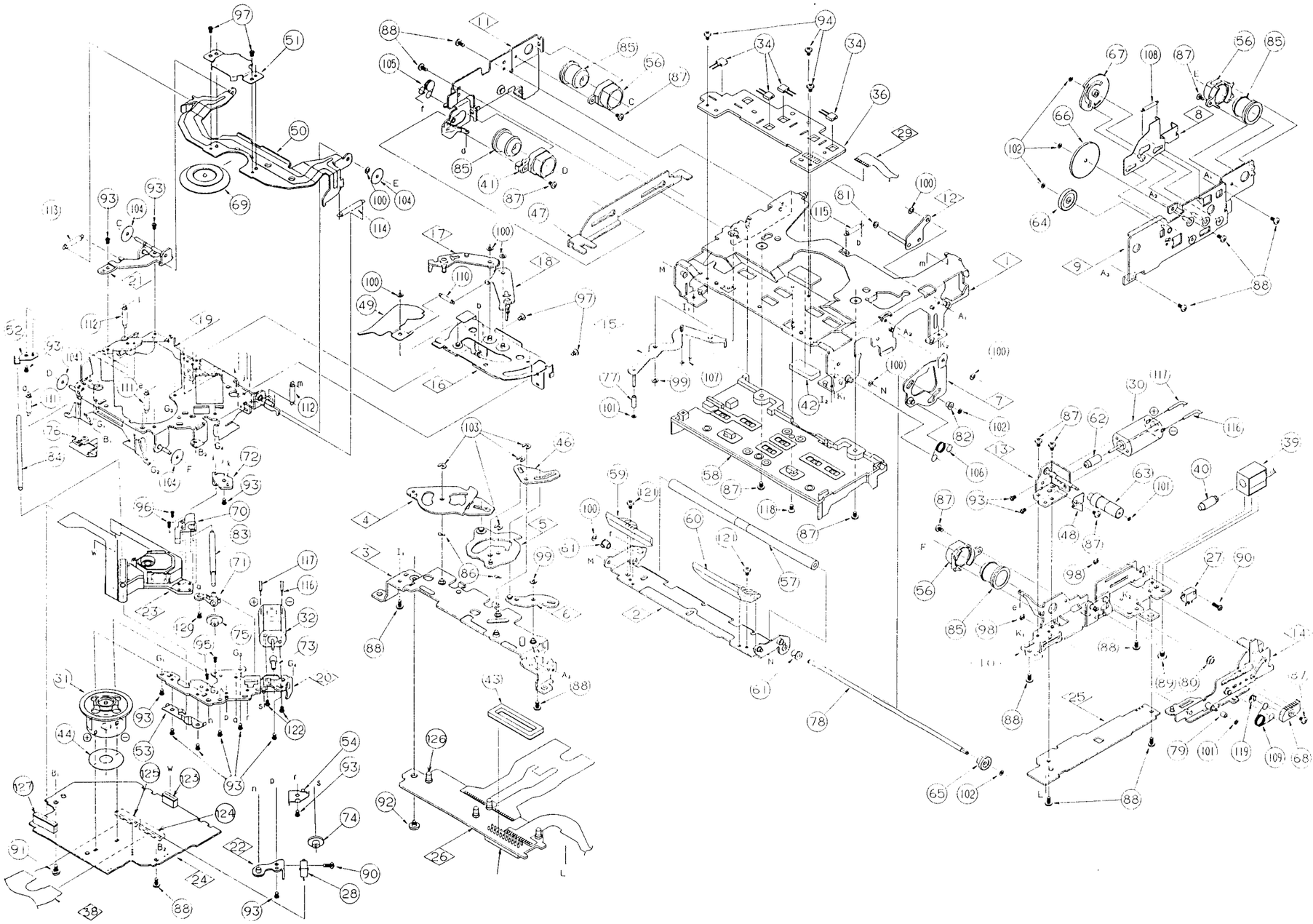
NO	PART NO.	DESCRIPTION	QTY
12	382-3337-00	BUTTON*MUTE	1
13	382-3338-00	BUTTON*FF	1
14	382-3339-00	BUTTON*FB	1
15	382-3336-00	BUTTON*EJECT	1
16	335-4470-00	ILLUMI PLATE*DISC IN	1
17	382-3341-00	BUTTON (CDC7500R) (CDC6500R)	6 5
18	335-4473-00	BUTTON HOLDER	1
19	335-4471-00	ILLUMI PLATE*DISC GUIDE	1
20	347-3856-00	FILM-HOLDER	1
21	347-3855-00	FILM-HOLDER	1
22	331-0178-01	LCD COVER	1
23	379-0429-00	INDICATOR*LCD	1
24	347-3854-00	FILM	1

NO	PART NO.	DESCRIPTION	QTY
27	017-0426-01	PILOTLAMP*GREEN	2
28	017-0426-00	PILOTLAMP*AMBER	2
29	013-3849-00	SWITCH*POWER	1
30	076-0456-00	PLUG	1
31	039-0033-00	SWITCH PWB	1
32	051-1798-00	IC*μPD17106	1
33	001-0593-01	LED (CDC7500R) (CDC6500R)	5 4
34	013-3977-10	SWITCH	18
35	001-0647-00	LED	1
36	013-3978-00	SWITCH (CDC7500R) (CDC6500R)	6 5
37	382-3322-00	BUTTON*POWER	1
38	335-4466-00	REAR COVER	1

NO	PART NO.	DESCRIPTION	QTY
39	382-3327-01	BUTTON*RELEASE	1
40	750-3076-00	SPRING	1
41	331-0143-00	HOOK HOLDER	1
42	335-4449-00	HOOK	1
43	750-3064-00	SPRING	1
44	341-1492-00	SHAFT	1
45	074-1021-00	OUTLET SOCKET	1
46	099-9939-00	PWB*CONNECT	1
47	099-9954-00	FLEX PWB	1
48	331-0151-00	DCP-HOLDER	1
49	716-0778-00	WAVE SCREW	3
50	716-1555-02	WAVE SCREW	4
51	714-2605-19	MACHINE SCREW	2
52	291-0061-00	STICKER	1
55	074-0991-16	OUTLET SOCKET*16P	1
56	001-0412-17	LED	1
57	076-0391-20	PLUG*20P	1
58	013-3932-00	SWITCH*RESET	1
59	092-0662-00	ANT-RECEPTACLE	1
60	331-0153-01	SHIELD PLATE	1
61	331-0142-00	CONNECTOR HOLDER	1
62	074-1022-01	OUTLET SOCKET*13P (USE ONLY 7500R)	1
63	074-1023-16	OUTLET SOCKET*16P	1
64	051-1810-00	IC*HA13150	1
65	331-0154-00	IC BRACKET	1
66	313-1543-01	HEAT SINK	1
67	731-2608-80	TAPTIGHT	2
68	331-0289-00	IC HOLDER	1
69	854-3233-00 854-3224-00	EXTENSION LEAD(CDC7500R) (CDC6500R)	1
70	347-3878-00	INSULATOR	1
71	311-1587-03	LOWER CASE	1
72	750-3060-00	SPRING*LEFT	2
73	929-0041-03	CD-MECHANISM-MODULE	1
74	303-0431-01	UPPER COVER	1
75	714-2004-19	MACHINE SCREW	2
76	714-2605-81	MACHINE SCREW	4
77	731-2605-80	TAPTIGHT	2
78	731-3006-40	TAPTIGHT	2
79	286-8020-01 286-8019-01	SETPLATE(CDC7500R) (CDC6500R)	1
80	335-4475-00	REFLECTOR	1
81	285-1410-00	GUIDE LABEL*SERVICE	1
82	285-1340-00	GUIDE LABEL*CAUTION	1
83	285-1426-00	GUIDE LABEL*LASER	1
84	345-3799-00	CAP (CDC7500R) (CDC6500R)	5 4
85	039-0032-01	MAIN PWB	1
86	947-0356-00	ILLUMI-ASSY	1
87	940-3346-00 940-3347-00	SUB ESCUT-ASSY(CDC7500R) (CDC6500R)	1
88	880-2075A	LW/MW/FM TUNER BLOCK	1
89	940-3332-00	OUTER ESCUT-ASSY	1
90	940-1579A 940-1593A	ESCUTCHEON-ASSY(CDC7500R) (CDC6500R)	1
91	347-3244-00	SHADE(USE ONLY CDC6500R)	1

■EXPLODED VIEW • PARTS LIST:

©CD mechanism module section 929-0041-03



NO.	PART NO.	DESCRIPTION	QTY
1	966-0129-05	CHASSIS-ASSY	1
2	966-0130-03	LWR-DISC-G-ASSY	1
3	966-0131-05	F-L--CHAS-ASSY	1
4	966-0132-02	F-LOCK-L-P-ASSY	1
5	966-0133-02	F-L-PLT-R-ASSY	1
6	966-0134-01	LC-LNK-A-ASSY	1
7	966-0135-00	POWER LINK-ASSY	1
8	966-0136-01	TRIG-PLT-ASSY	1
9	966-0137-03	GEAR PLATE-ASSY	1
10	966-0138-05	SFT-P-CHAS-ASSY	1
11	966-0139-05	DMP-BRKT-N-ASSY	1
12	966-0140-00	CLP-LIFT-L-ASSY	1

NO.	PART NO.	DESCRIPTION	QTY
13	966-0141-02	MOTOR-BRKT-ASSY	1
14	966-0142-05	SHIFT-PLT-ASSY	1
15	966-0143-04	SENSOR-L-ASSY	1
16	966-0144-03	STAGE-P-ASSY	1
17	966-0145-02	STOP-A-L-ASSY	1
18	966-0146-03	STOP-A-R-ASSY	1
19	966-0303-00	DRIVE-PLT-ASSY	1
20	966-0182-02	DR-MO-BRKT-ASSY	1
21	966-0304-00	SIDE PLATE-ASSY	1
22	966-0150-02	SW-PLATE-ASSY	1
23	969-0002-00	PICK UP ASSY	1
24	099-9836-02	FLOAT PWB	1

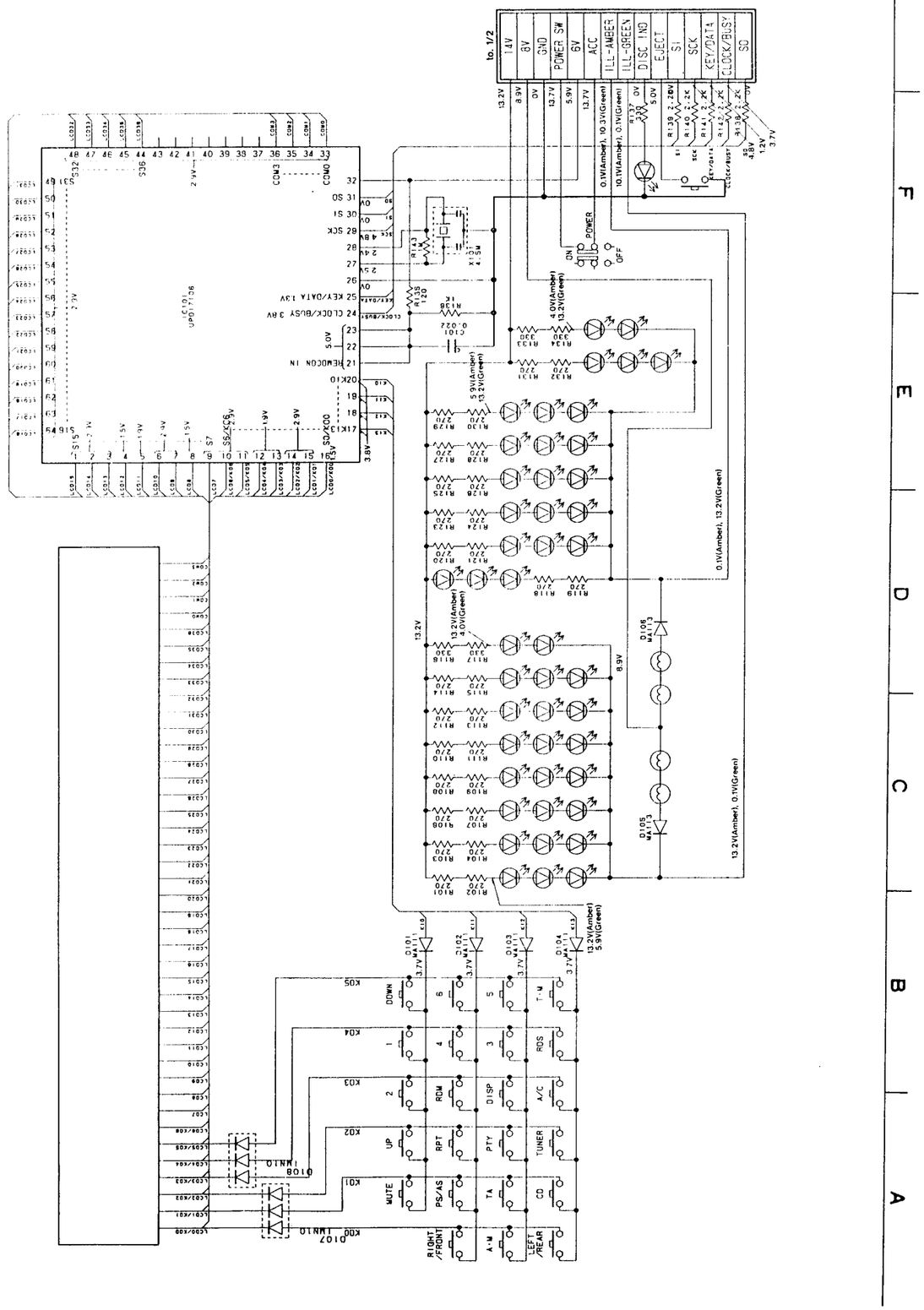
NO.	PART NO.	DESCRIPTION	QTY
25	099-9911-01	MECHA-PWB	1
26	039-0008-00	CDM-PWB	1
27	013-3808-10	SWITCH	1
28	013-3808-11	SWITCH	1
29	039-0010-00	MECHA-FLEX PWB	1
30	020-1501-00	DC-MOTOR*LOADING	1
31	020-1509-00	DC-MOTOR*SPINDLE	1
32	020-1508-00	DC-MOTOR*SLED	1
34	060-0252-01	PHOTO TR*PT4850F	4
36	039-0009-00	SENSOR PWB	1
38	099-9343-00	FLOAT-FLEX PWB	1
39	960-4328-00	PLUNGER-ASSY	1

NO.	PART NO.	DESCRIPTION	QTY
40	632-2047-00	CORE	1
41	621-0201-02	DMP-HOLDER B-DL	1
42	345-6962-00	CLAMP-S-SHEET	1
43	345-7021-01	CN-SPACER	1
44	345-5112-00	MOTOR SHEET S	1
46	620-0181-00	LOCK LINK B	1
47	620-0187-99	LOCK-L-PLATE	1
48	620-0190-00	MOTOR-BRKT-P-SP	1
49	620-0196-00	LOCK PLATE	1
50	620-0329-00	CLAMPER LINK	1
51	620-0198-03	CLAMPER PLATE	1
52	620-0202-00	HOLD PLATE	1

NO.	PART NO.	DESCRIPTION	QTY
53	620-0328-00	SLID-S-PLATE	1
54	620-0204-03	SP-PLATE A	1
56	621-0200-02	DMP-HOLDER A-DL	3
57	621-0160-00	LOADING ROLLER	1
58	621-0111-03	U-DISC GUIDE	1
59	621-0112-01	SHUTTER L	1
60	621-0113-01	SHUTTER-R	1
61	621-0114-02	ROLLER SLEEVE	2
62	621-0115-01	WORM GEAR	1
63	621-0116-01	GEAR A	1
64	621-0117-01	GEAR B	1
65	621-0118-01	ROLLER GEAR	1
66	621-0119-01	GEAR C	1
67	621-0120-01	GEAR D	1
68	621-0121-00	RACK	1
69	621-0205-01	CLAMPER RING	1
70	621-0123-01	SCREW HOLDER	1
71	621-0168-01	LS-HOLDER A	1
72	621-0169-01	LS-HOLDER B	1
73	621-0238-00	DR-GEAR A	1
74	621-0171-01	DR-GEAR B	1
75	621-0172-01	DR-GEAR C	1
76	621-0173-00	FPC GUIDE	1
77	621-0159-00	S-LINK ROLLER	1
78	622-0744-00	ROLLER SHAFT	1
79	622-0745-00	PWR-LNK-ACT-ROL	1
80	622-0746-01	SFT-PLT-G-ROLR	1
81	622-0747-00	CLP-LIFT-ROLR	1
82	622-0748-00	LW-G-PLT-G-ROLR	1
83	624-0012-01	LEAD SCREW	1
84	624-0003-01	SLIDE SHAFT	1
85	629-0047-01	DAMPER-DL	4
86	684-0072-00	PLATE SPRING	2
87	714-2003-81	MACHINE SCREW*M2x3	10
88	714-2004-81	MACHINE SCREW*M2x4	12
89	714-2603-81	MACHINE SCREW*M2.6x3	1
90	716-0791-00	SCREW*M2x5.7	2
91	716-1445-01	PWB-SCREW	1
92	716-1462-01	LED-PWB-SCREW	1
93	716-1468-00	SCREW*M2x2.5	14
94	716-1507-00	SCREW	3
95	739-1725-17	PRECISION SCREW*M1.7x2.	2
96	739-1730-17	PRECISION SCREW*M1.7x3	2
97	739-2020-17	PRECISION SCREW*M2x2	4
98	743-1500-10	E-RING	2
99	746-0622-01	WASHER	2
100	746-0624-01	WASHER	8
101	746-0724-00	WASHER	3
102	746-0761-00	WASHER	5
103	743-2000-10	E-RING	4
104	746-0846-00	WASHER	4
105	750-2875-01	RO-TO-SP-L	1
106	750-2876-02	RO-TO-SP-R	1
107	750-2877-01	SEN-LINK-SP	1
108	750-2878-00	TRG-PLT-SP	1
109	750-2879-01	SFT-PLT-TO-SP	1
110	750-2880-00	LOCK-P-SP	1
111	750-2881-01	DAMPER SP-F	2
112	750-2882-00	DUMPER-SP-R	2
113	750-2883-01	CLP-SP-L	1
114	750-3055-00	CLP-SP-R	1
115	750-2885-00	CENTER-SP	1
116	800-4904-60	VINYL-COAT-WIRE*BLACK	2
117	802-4904-60	VINYL-COAT-WIRE*RED	2
118	716-1488-00	SCREW	1
119	744-0037-00	SPECIAL E-RING	1
120	716-1524-00	SCREW*M2x2.5	1
121	716-1535-00	SCREW	2
122	739-2025-15	PRECISION SCREW	2
123	074-0924-05	OUTLET SOCKET*5P	1
124	074-0923-11	OUTLET SOCKET*11P	1
125	074-0923-13	OUTLET SOCKET*13P	1
126	001-0563-00	LED*GL380	4
127	074-0924-13	OUTLET SOCKET*13P	1
128	074-0921-20	OUTLET SOCKET*20P	1

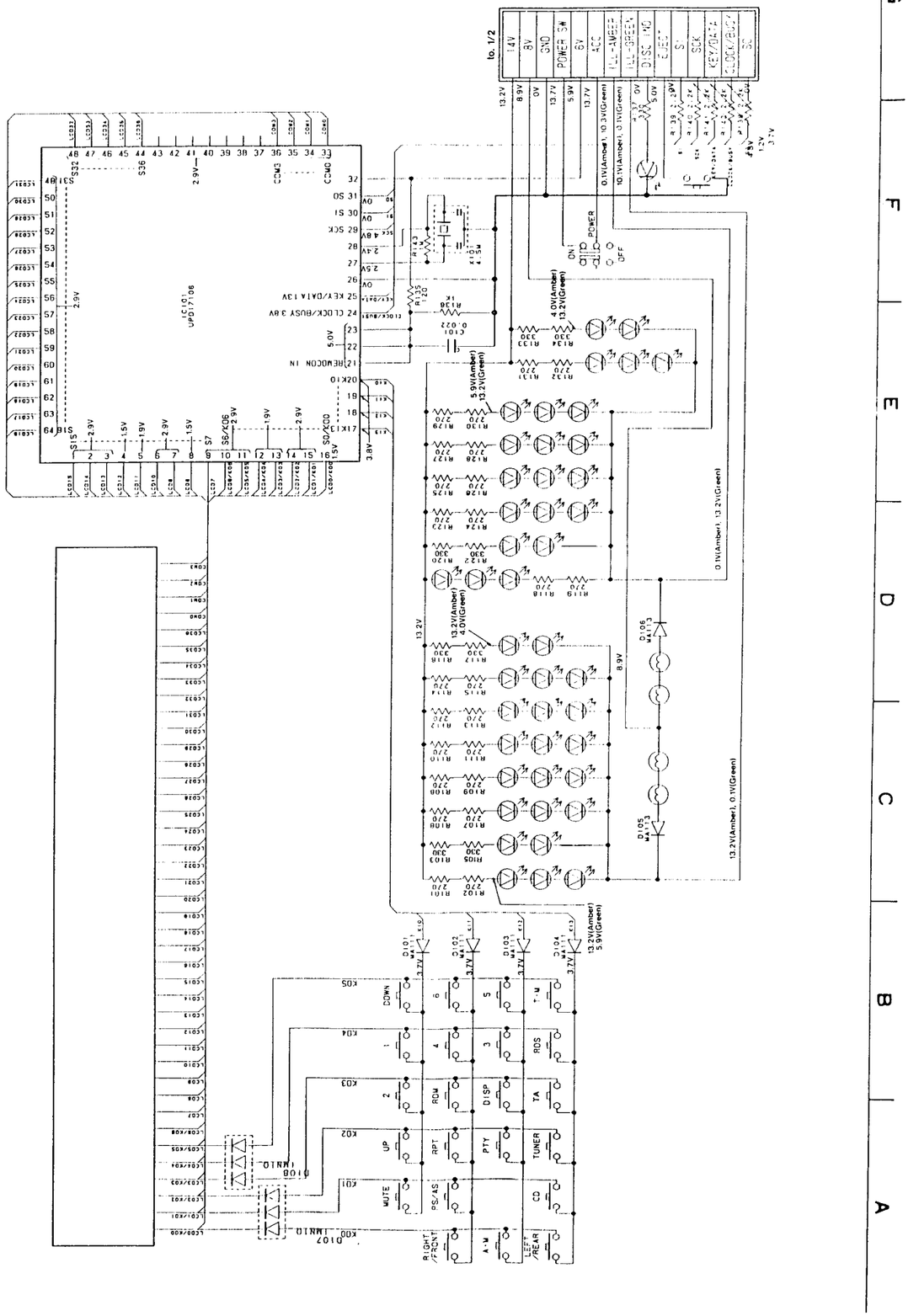
■CIRCUIT DIAGRAM: 2/2

◎CDC7500R



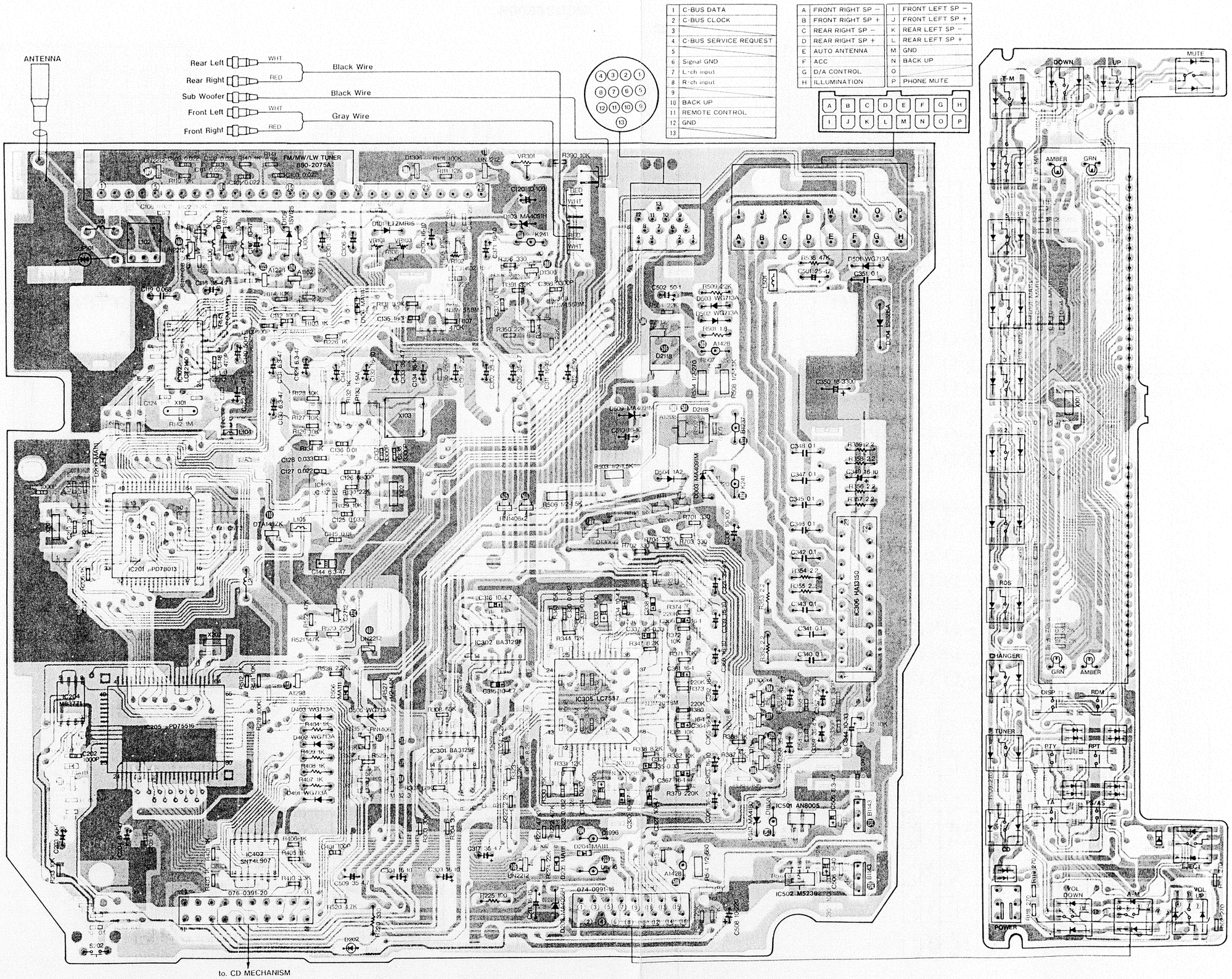
■CIRCUIT DIAGRAM: 2/2

◎CDC6500R



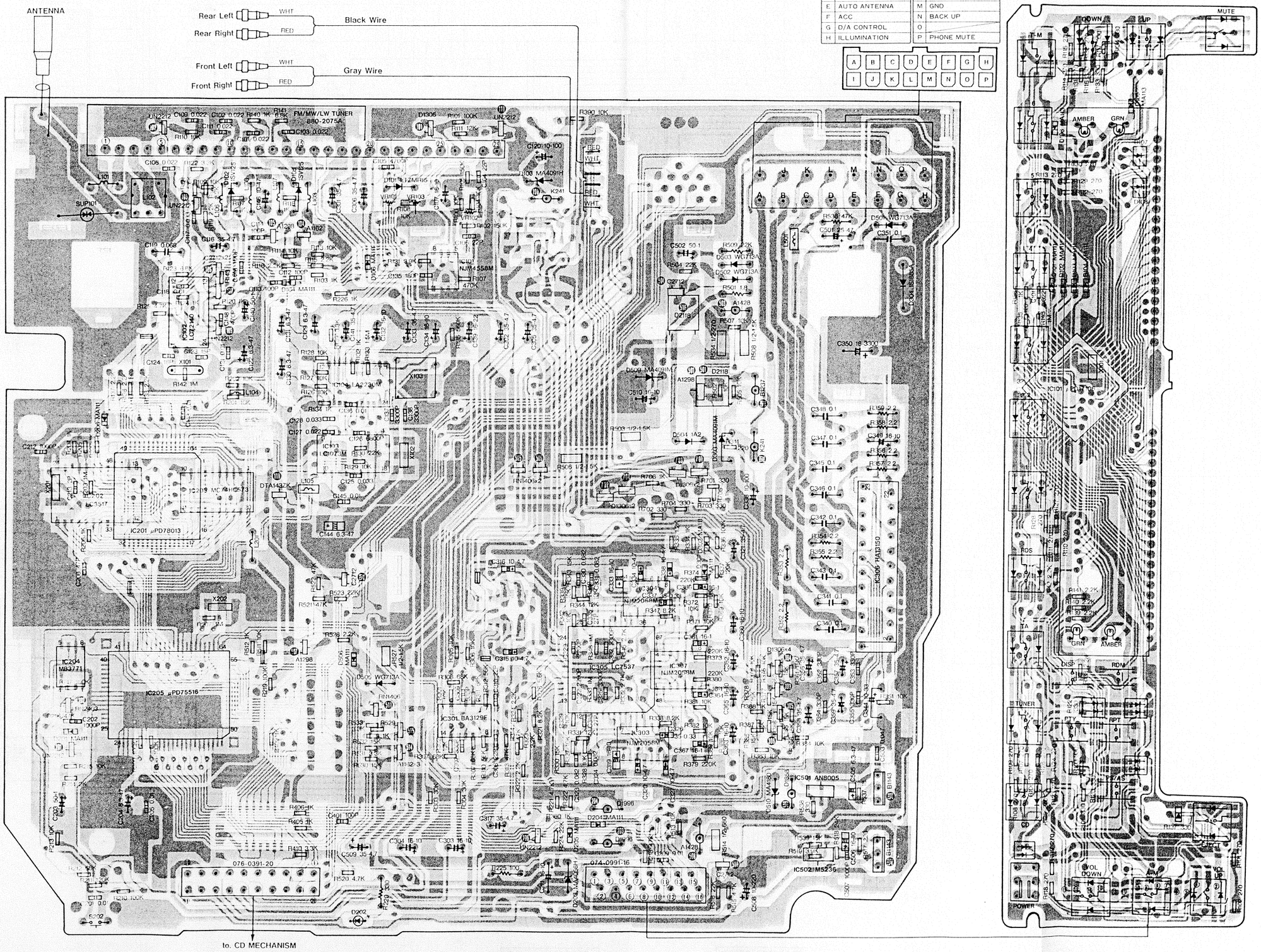
■PRINTED WIRING BOARD:

◎CDC7500R

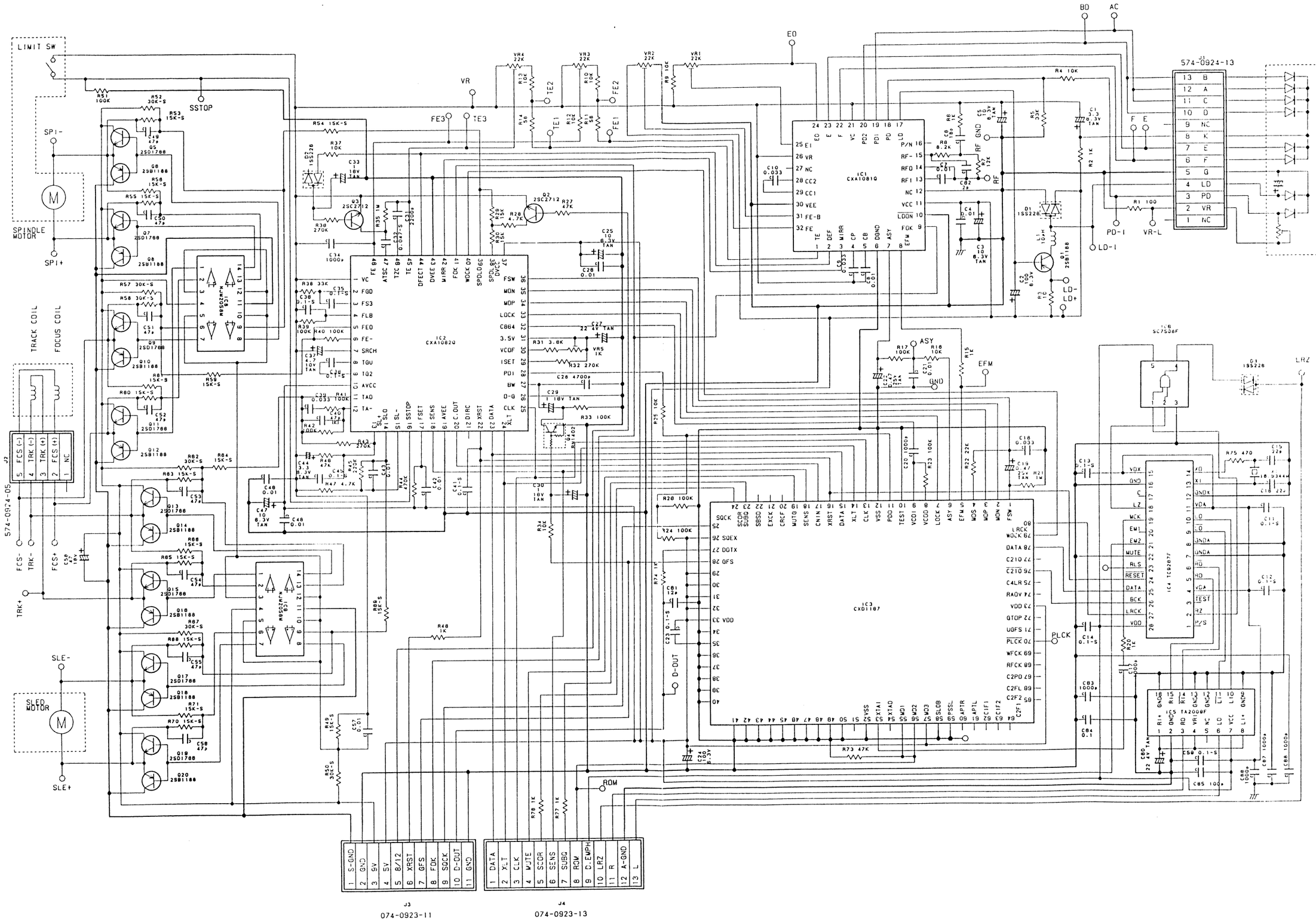


■PRINTED WIRING BOARD:

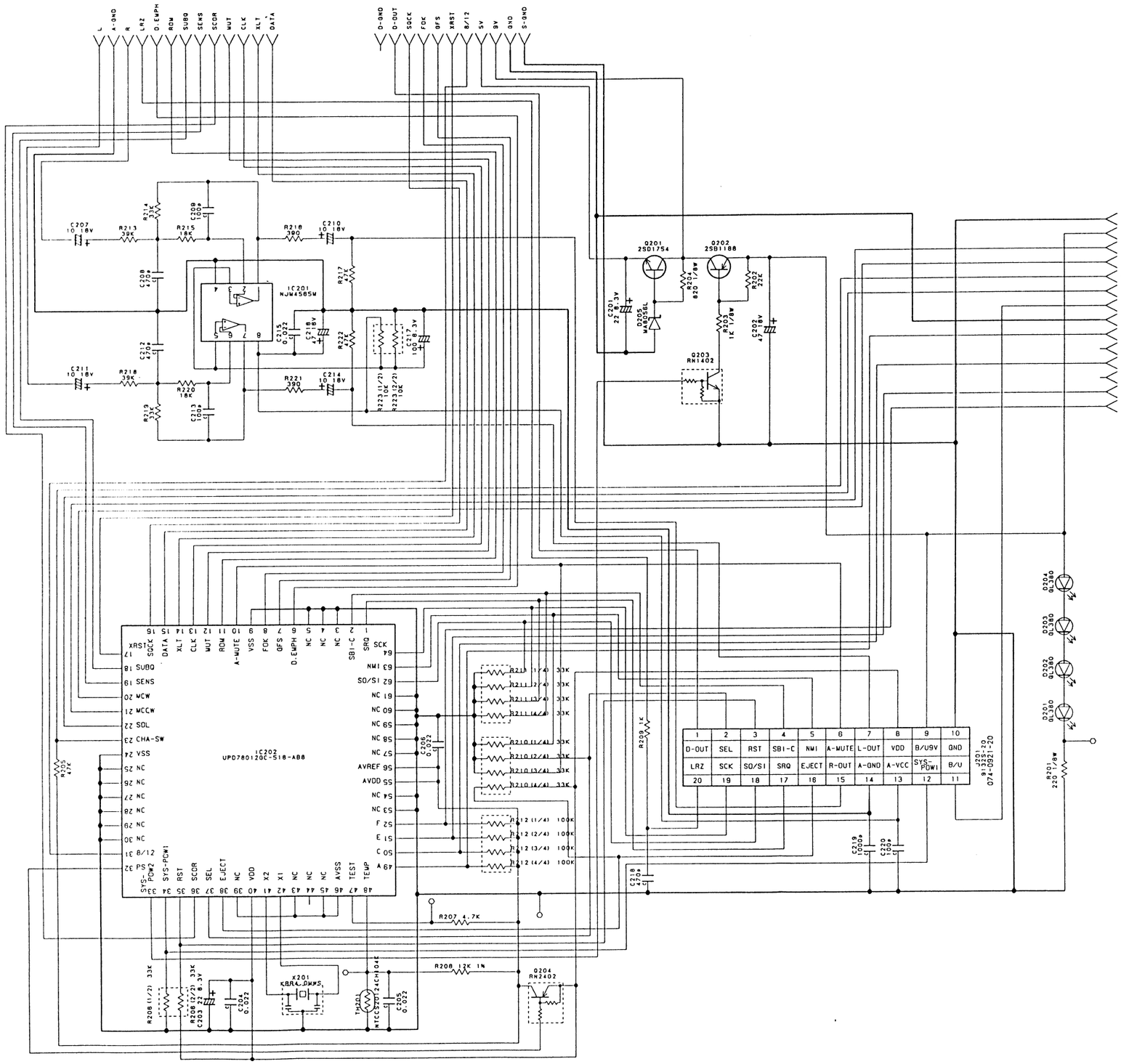
◎CDC6500R



■CIRCUIT DIAGRAM: 1/2 ◎CD MECHANISM section 929-0041-03



■CIRCUIT DIAGRAM: 2/2 ◎CD MECHANISM section 929-0041-03



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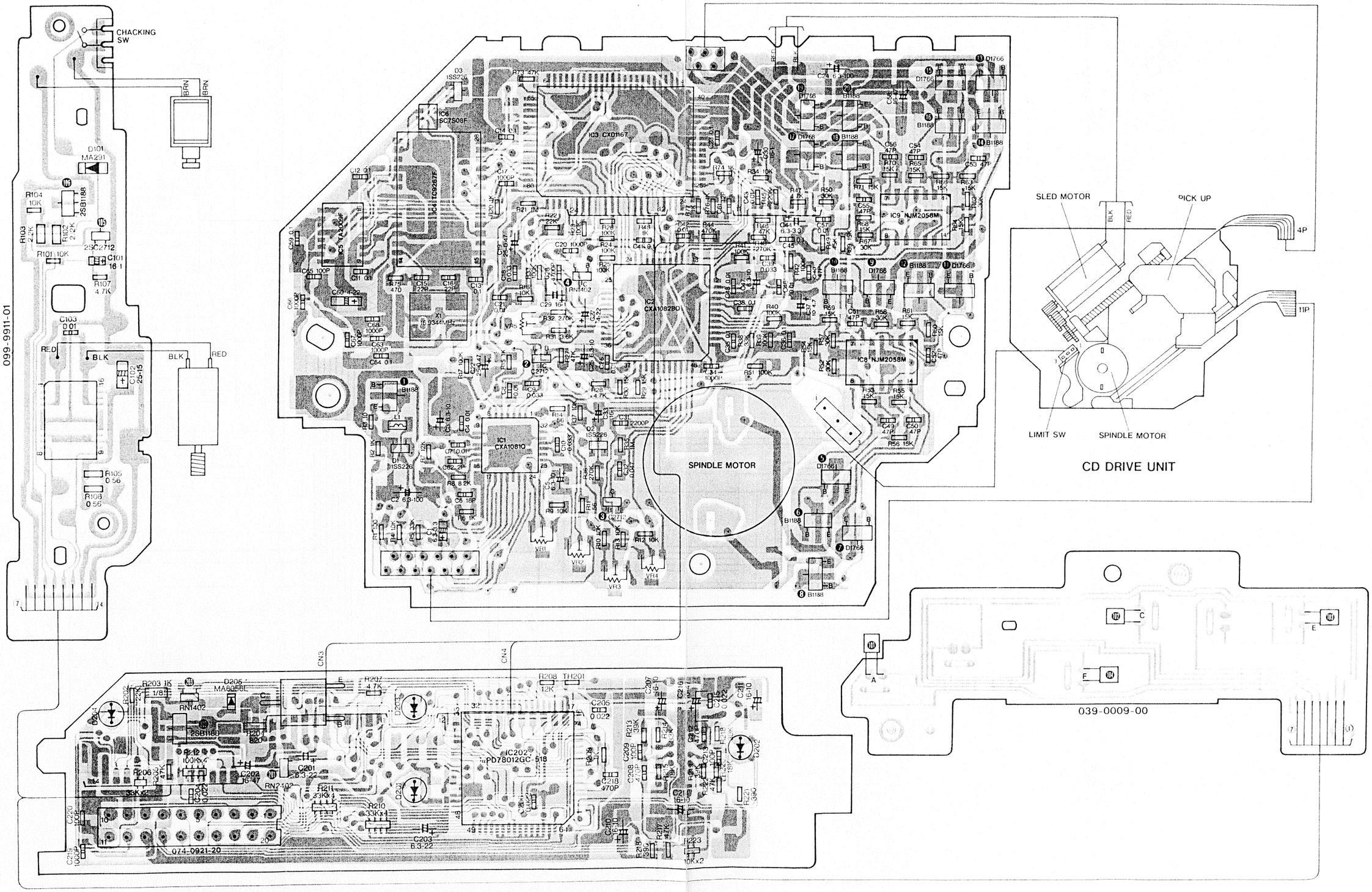

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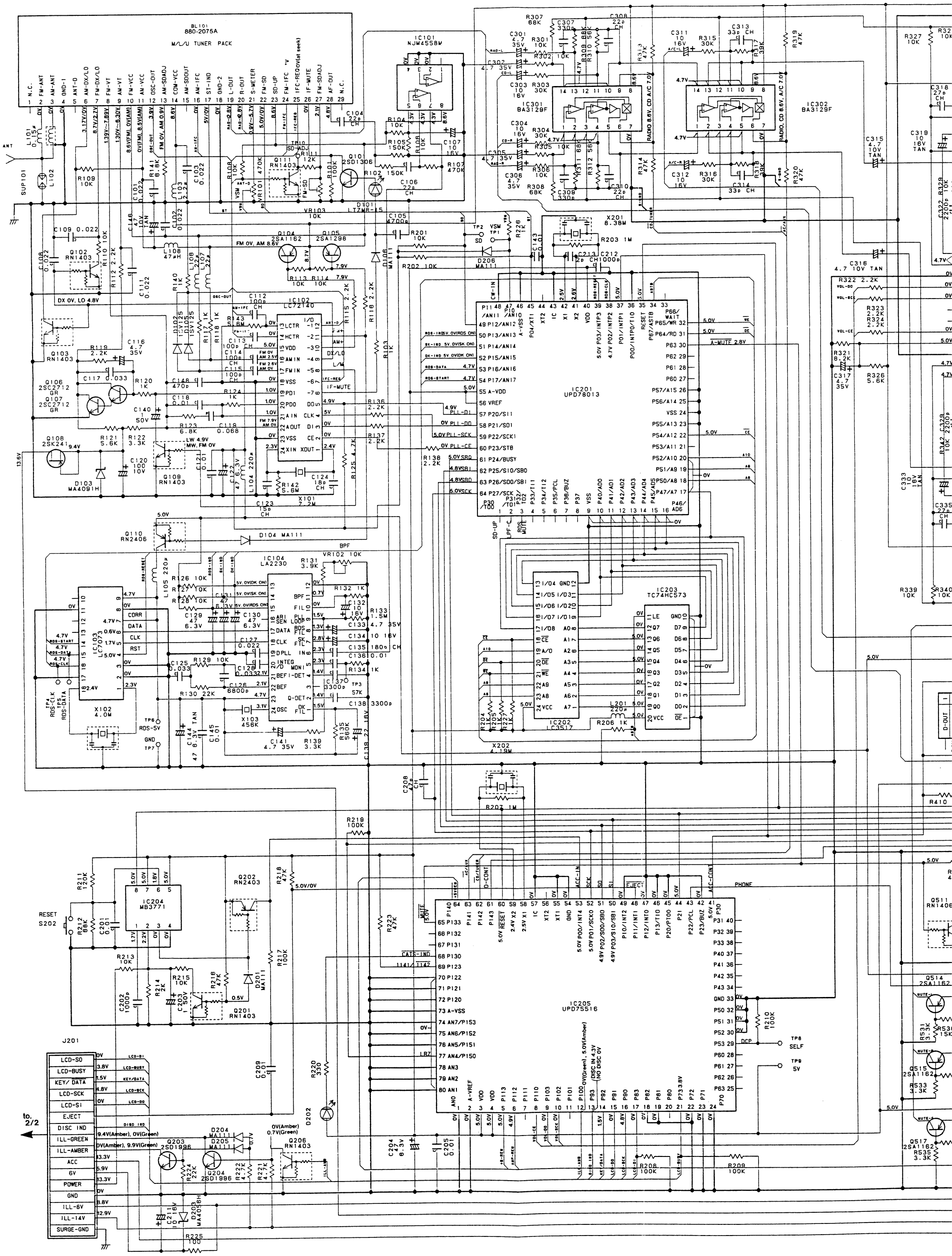
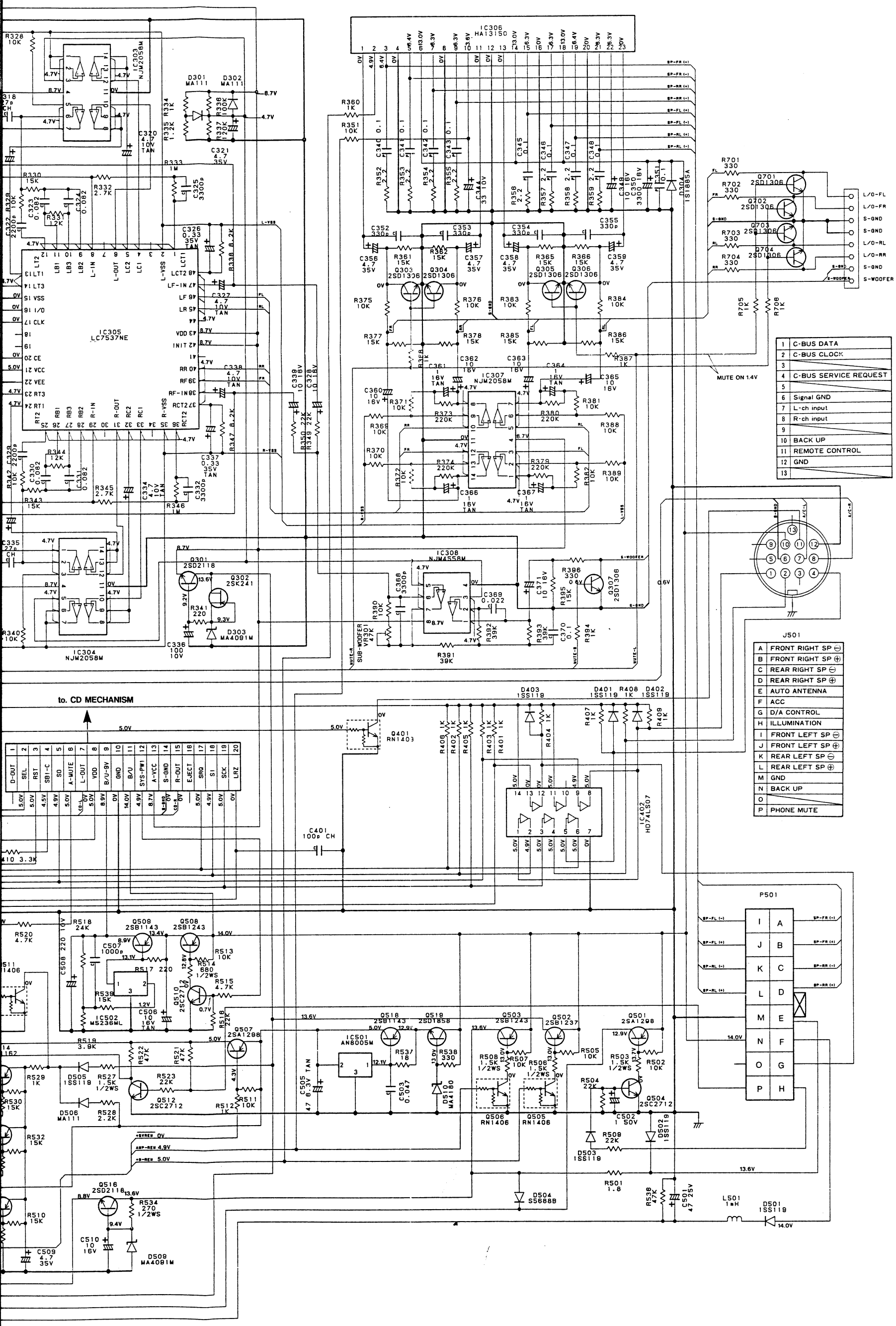
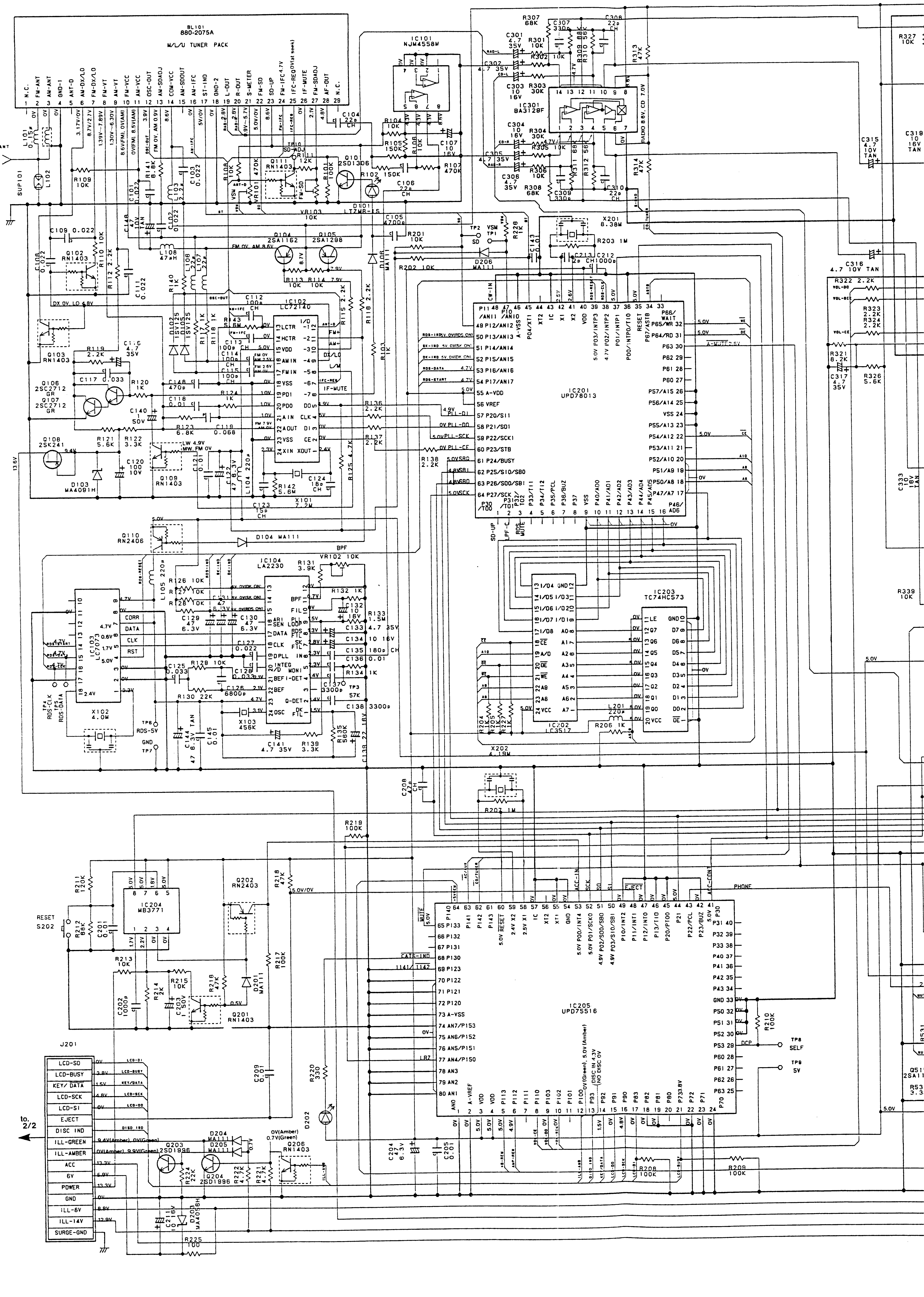
■CIRCUIT DIAGRAM: 1/2

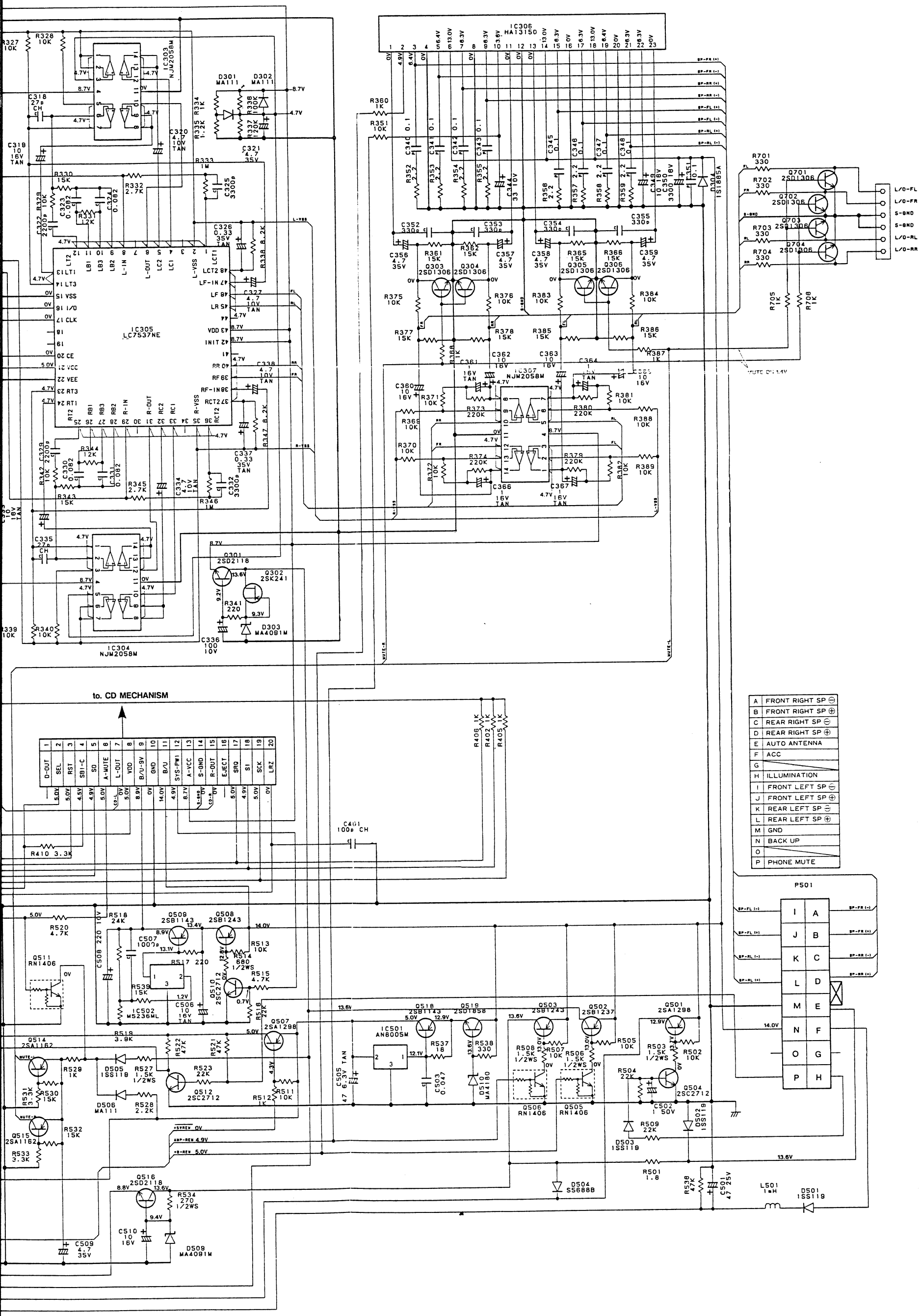



IC305 LC7537NE
IC306 HA13150
IC307 NJM2058M
IC308 NJM4558M
IC303 NJM2058M
IC304 NJM2058M
IC501 AN8005M
IC502 M5236ML
IC402 HD74LS07
Q401 RN1403
Q506 RN1406
Q505 RN1406
to. CD MECHANISM
J501
P501
C-BUS DATA
C-BUS CLOCK
C-BUS SERVICE REQUEST
Signal GND
L-ch input
R-ch input
BACK UP
REMOTE CONTROL
GND
FRONT RIGHT SP ⊖
FRONT RIGHT SP ⊕
REAR RIGHT SP ⊖
REAR RIGHT SP ⊕
AUTO ANTENNA
D/A CONTROL
ILLUMINATION
FRONT LEFT SP ⊖
FRONT LEFT SP ⊕
REAR LEFT SP ⊖
REAR LEFT SP ⊕
GND
BACK UP
PHONE MUTE
MUTE ON 1.4V
L/O-FL
L/O-FR
S-GND
S-GND
L/O-RR
S-GND
S-WOOFER
D-OUT
SEL
RST
SBI-C
SO
A-MUTE
L-OUT
VDD
B/U-9V
GND
B/U
SYS-PWI
A-VCC
S-GND
R-OUT
EJECT
SRQ
SI
SCK
LRZ

■CIRCUIT DIAGRAM: 1/2

◎CDC6500R


BL101
880-2075A
M/L/U TUNER PACK
IC101 NJM4558M
IC301 BA3128F
IC102 LC72140
IC201 UPD78013
IC103 LC7073
IC104 LA2230
IC202 LC3517
IC203 TC74HC573
IC204 MB3771
IC205 UPD75516
J201
LCD-SO
LCD-BUSY
KEY/ DATA
LCD-SCK
LCD-SI
EJECT
DISC IND
ILL-GREEN
ILL-AMBER
ACC
6V
POWER
GND
ILL-6V
ILL-14V
SURGE-GND
to. 2/2
RESET S202
TP8 SELF
TP9 5V
PHONE



A	FRONT RIGHT SP ⊖
B	FRONT RIGHT SP ⊕
C	REAR RIGHT SP ⊖
D	REAR RIGHT SP ⊕
E	AUTO ANTENNA
F	ACC
G	
H	ILLUMINATION
I	FRONT LEFT SP ⊖
J	FRONT LEFT SP ⊕
K	REAR LEFT SP ⊖
L	REAR LEFT SP ⊕
M	GND
N	BACK UP
O	
P	PHONE MUTE